Interstate 84 Exit 63 & 64 Interchange Area Management Plan

Interstate 84/2nd Street & Interstate 84/Button Bridge Road

Prepared for

City of Hood River
Hood River County
Oregon Department of Transportation

Prepared by

DKS *Associates*
TRANSPORTATION SOLUTIONS

Angelo planning group

Parametrix

September 2011

~~DRAFT~~

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~~May~~ ~~SEPTEMBER~~eptember 2011

Acknowledgments

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** Appendices are provided as a separate document. See Appendices for Interstate 84 Exit 62 Interchange Area Management Plan and Interstate 84 Exit 63 & Exit 64 Interchange Area Management Plan, Hood River Oregon, ~~May~~ September 2011.*

ACRONYMS

HCRH	Historic Columbia River Highway
HDM	Highway Design Manual
IAMP	Interchange Area Management Plan
LOS	Level of Service
OAR	Oregon Administrative Rule
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
STIP	Statewide Transportation Improvement Program
TSP	Transportation System Plan
UGB	Urban Growth Boundary
V/C	Volume to Capacity

CHAPTER 1: EXECUTIVE SUMMARY

This Interchange Area Management Plan (IAMP) for the I-84 Exit 63 & Exit 64 interchanges in Hood River, Oregon acts as refinement areas of the City of Hood River and Hood River County Transportation System Plans (TSPs) and as a facility plan for the Oregon Department of Transportation. It establishes the desired function of these interchanges and provides a long-range plan for infrastructure improvements and operations to achieve agency and community goals as the City continues to grow.

The IAMP was developed as a cooperative effort between the Oregon Department of Transportation, the City of Hood River, Hood River County, and the Port of Hood River. Further input from the community and local stakeholder groups was obtained through meetings with a Stakeholder Working Group and through public open house meetings. The process followed in the development of this plan is illustrated in Figure 1.

This plan has been organized to facilitate implementation, including only content needed to understand the direction for managing the transportation system within the area surrounding these interchanges and to guide future decision-making in a manner consistent with that direction. Documents containing detailed background information developed through the planning process that created the basis for findings and recommendations are included in a separate appendix.[1] Elements in this report include:

Introduction

- This chapter discusses the purpose of the I-84 Exit 63 & Exit 64 IAMP, the intended function of these interchanges, identification of the study area, and the goals and objectives for this plan developed by participating agencies and local stakeholders.

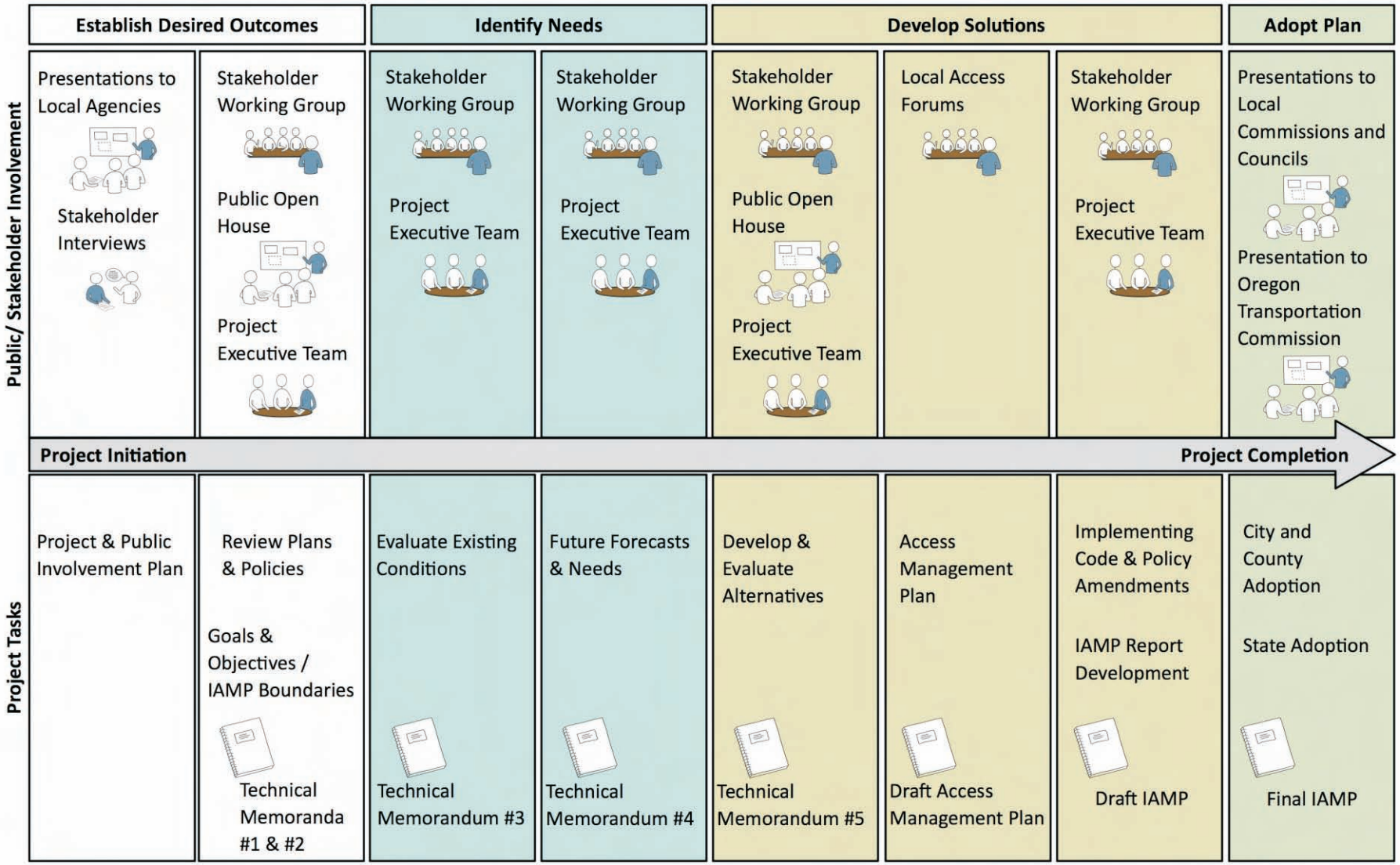
Management Plan

- A multimodal plan for transportation system improvements is provided for the I-84 Exit 63 and Exit 64 interchanges and surrounding areas, including projects for pedestrian and bicycle travel, as well as for motor vehicle needs.
- A supplementary planning study to evaluate changes in transportation system needs required to support a higher level of development intensity in the Hood River Waterfront is acknowledged. The findings from this study must be updated at the time the land use action is submitted.
- Access management plans are included to facilitate the ongoing maintenance of the interchange crossroads in a manner that is consistent with their intended function.
- Roles and responsibilities related to the adoption and implementation of the IAMP are outlined for the Oregon Department of Transportation, the City of Hood River, and Hood River County. Recommended amendments to City and County plans and development codes necessary to successfully adopt and implement the IAMP are also included as appendices.
- Planning-level cost estimates for recommended improvement projects are included to guide future financing strategies.

[1] *Appendices for Interstate 84 Exit 62 Interchange Area Management Plan and Interstate 84 Exit 63 & Exit 64 Interchange Area Management Plan*, Hood River Oregon, May 2011.

Monitoring and Updates

- A process for tracking future traffic growth and impacts in the interchange areas and comparison against forecasted conditions is provided.
- A list of potential actions or conditions that could result in a need to update the IAMP is provided and should be continuously reviewed as part of the ongoing monitoring process.



I-84 Exit 63 & Exit 64
Interchange Area Management Plan

Figure 1 IAMP Development Process

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CHAPTER 2: INTRODUCTION

This chapter discusses the purpose of the Interchange Area Management Plan, introduces the management areas, describes the function of the interchanges, and outlines the goals and objectives.

IAMP Purpose and Intent

The I-84 Exit 64 - East Hood River Interchange project was identified as a high priority construction project by Hood River County, the City of Hood River, and the Port of Hood River. It is listed in the Approved 2008-2011 Statewide Transportation Improvement Program (STIP) and is being funded through OTIA III, with construction anticipated to be completed in 2011.

In accordance with Agency policies and State Administrative Rules, the reconstruction of the Exit 64 interchange requires that the Oregon Department of Transportation (ODOT) prepare an IAMP for the proposed Exit 64 - East Hood River Interchange project. Because of the proximity and nature of use of the Exit 63 interchange immediately to the west, both the Exit 63 and Exit 64 interchange areas are being included in the same IAMP.

IAMPs are required by OAR 734-051-0155(7~~6~~) for any new or significantly reconstructed interchange. The Oregon Highway Plan policies further direct ODOT to plan and manage interchange areas for safe and efficient operation. The purpose of an IAMP is to protect the function of the interchange and, consequently, the state's and local agency's investment in the facility. New interchanges and improvements to existing interchanges are very costly. State and local government and their citizens have an interest in ensuring that their interchanges function efficiently. The IAMP will define how the land use and transportation systems within the interchange study area will function over the planning horizon (year 2031).

Interchange Function

Generally, an interchange is defined as a system of interconnecting roadways in conjunction with one or more grade separations that provides for the movement of traffic between two or more roadways or highways on different levels.[2] The function of an interchange is established by the characteristics of the connecting highway.

The I-84 Exit 63 and Exit 64 interchanges are components of I-84, an Interstate Highway and Freight Route. The Exit 63 interchange serves as the primary entrance into the commercial heart of the City of Hood River. It also serves as the primary entrance into the Port of Hood River property north of the interstate, which is currently underdeveloped, but is planned to support light industrial, recreational, and commercial uses in the future. Furthermore, the Exit 63 interchange serves as a link between downtown and the Hood River-White Salmon Bridge across the Columbia River and is the primary pedestrian connection between downtown and the Hood River Waterfront (Waterfront).

The Exit 64 interchange serves as a vital connection between the states of Washington and Oregon, connecting the central Gorge area and facilitating the local and interstate movement of freight. The

[2] *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials, Washington D.C., 5th Edition, 2004, p. 743.

interchange also serves to facilitate the movement of recreational traffic from the interstate system to the numerous recreational areas in both Oregon and Washington states. A third function of the interchange is to facilitate the movement of commuters/ local residents and consumers between Washington and Oregon. Highway commercial development at the interchange provides interstate travelers with convenient gas, food, and lodging.

The Oregon Highway Plan (OHP)[3] classifies I-84 as an Interstate Highway. According to the OHP, the primary function of an Interstate Highway is to "provide connections to major cities, regions of the state, and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. Interstate Highways are major freight routes and their objective is to provide mobility."

2nd Street (Exit 63) is owned by the City of Hood River south of I-84, by the Port of Hood River north of Riverside Drive, and by ODOT between these points. It is classified as a collector street for its entire length between Portway Avenue and State Street.

Button Bridge Road (Exit 64) is owned by ODOT through the interchange area. It leads to the Hood River-White Salmon Bridge across the Columbia River to the north, which is owned by the Port of Hood River, and to OR 35 to the south, which is classified as a Statewide Highway and is owned by ODOT.

Study Area

Figure 2 illustrates the Study Area for the I-84 Exit 63 & Exit 64 IAMP. The study area boundaries are State Street and the urban growth boundary (UGB) to the south, the UGB to the east and north, and 13th Street to the west.

The IAMP study area was chosen to reflect the general area where the interchanges would potentially influence land use and traffic patterns. As a general rule of thumb, lands located within approximately ½-mile from the interchanges are considered. However, the boundary was further refined through consideration of existing and planned land uses in the vicinity that will impact the interchanges, transportation facilities and traffic operations, and natural and cultural resources.

While the southern boundary at State Street is significantly closer to the interchanges than ½-mile, this limit was deemed appropriate for this area given the changes in topography and existing residential neighborhoods to the south that are unlikely to be redeveloped within the planning horizon.

In addition to mapping study area boundaries, Figure 2 also identifies study intersections and access management areas. Study intersections are key locations where safe and efficient operation is essential for adequate operation of the interchanges. These intersections were analyzed as part of the study to identify any safety or operational deficiencies through the planning horizon. Needed improvements to address deficiencies were developed and recommended for inclusion in State and local capital improvement plans. Within the Study Area, ODOT, the City of Hood River, and the Port of Hood River all maintain jurisdiction over one or more key roadways, as shown in Table 1.

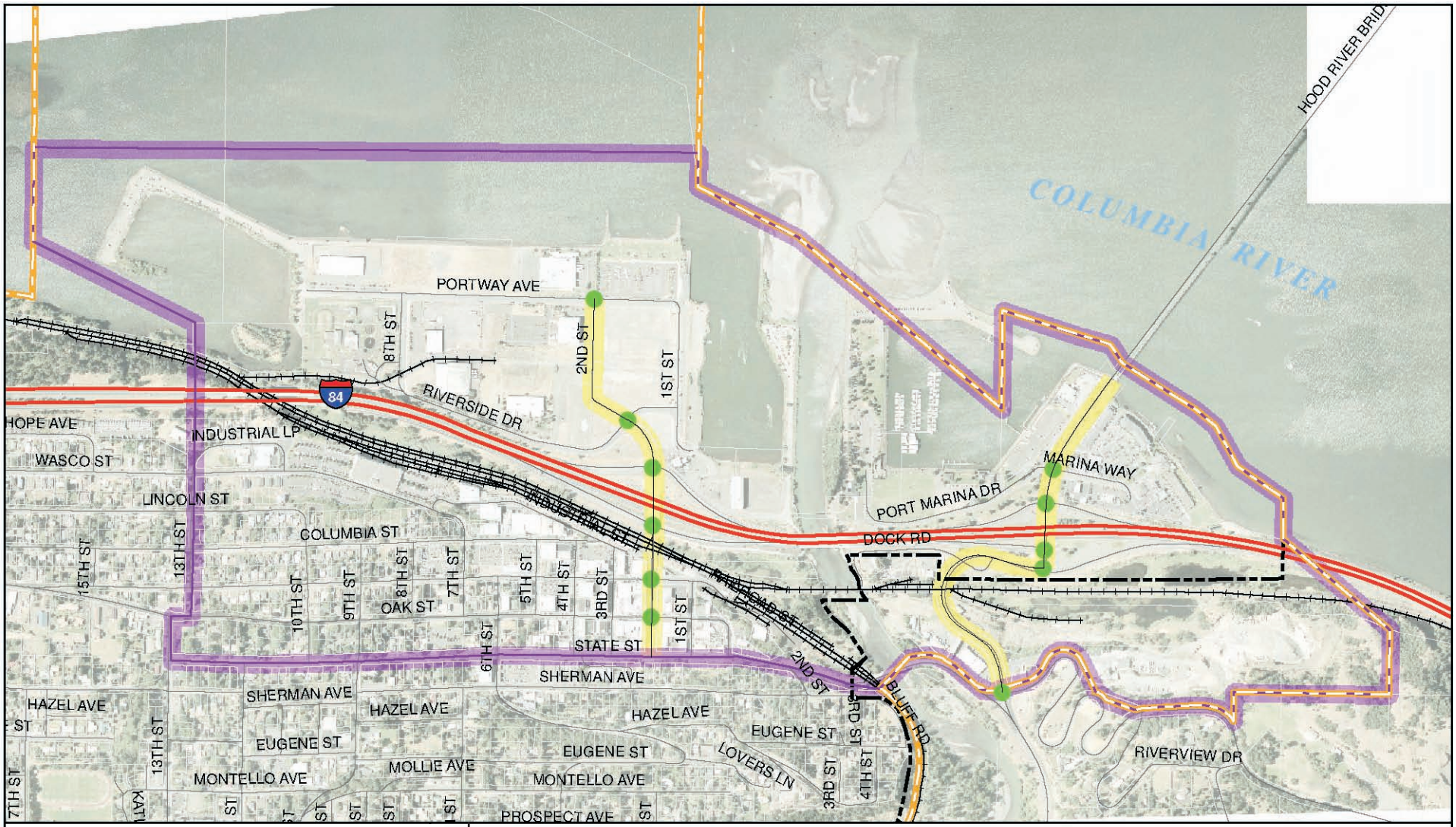
[3] *1999 Oregon Highway Plan*, Oregon Department of Transportation, Amended July 2006.

Table 1: Roadway Jurisdiction

Key Interchange Area Roadway	Agency of Jurisdiction
I-84	ODOT
2nd Street	~~Port of Hood River (Portway Avenue to north of Riverside Drive)~~City of Hood River
	ODOT (Riverside Drive to north of Cascade Avenue) ~~City of Hood River (Cascade Avenue to State Street)~~
Riverside Drive	ODOT (in 2nd Street intersection area) City of Hood River (outside of 2nd Street intersection area)
Cascade Avenue (from Oak Street to 1st Street)	City of Hood River
Oak Street	ODOT
State Street	City of Hood River (West of Front Street)
	ODOT (East of Front Street)
Historic Columbia River Highway*	ODOT
Button Bridge Road	ODOT
OR 35	ODOT

* The Historic Columbia River Highway (US 30) runs over Oak Street, Front Street, and State Street (from Front Street to OR 35) and continues east of OR 35.

Access management areas are corridors along the interchange crossroads where turning movements related to driveways and public street intersections can influence interchange operations. As a general practice, these corridors include the length of the interchange crossroads within ¼-mile of the interchange ramp terminals, which would be consistent with ODOT's access management spacing standards for interchange areas. As part of the IAMP, access management plans were developed that provide short, medium, and long-range actions to modify access to the crossroads within the access management areas to provide conformance with ODOT's access management spacing standards where feasible.



I-84 Exit 63 & Exit 64
Interchange Area Management Plan

Figure 2 Study Area

Study Area
Study Intersection
Access Management Area
Interstate
Roadway
Railroad
City Limit
UGB
Stream
Parcel Boundary

0 400 800 1,200
Feet
1 inch = 1,000 feet

Parametrix

Goals and Objectives

The goals and objectives of this IAMP reflect the intentions and interests of ODOT, the City of Hood River, Hood River County, and other key stakeholders for the interchanges and transportation operations in the area. The goals and objectives are guided by, but not re-statements of, Oregon Highway Plan policies and OAR language. The objectives relate what the plan is trying to accomplish and are intended to be achievable and measurable. The objectives served as the basis for data collection and research, as alternative evaluation criteria to guide alternatives analysis and selection of the preferred alternative, and to guide management decisions.

Goal 1: Protect the function and operation of the interchanges and the state highways as follows:

- I-84 is classified as an Interstate Highway. It is part of the National Highway System and is a designated freight route between Portland and points east. The operational objective for Interstate Highways is to provide safe and efficient high-speed travel in urban and rural areas.
- Oregon 35 is classified as a Statewide Highway, which provides inter-urban and inter-regional mobility and provides connections to larger urban areas, ports, and major recreational areas not directly served by Interstate Highways.
- The Historic Columbia River Highway (HCRH) is classified as a District Highway. The operational objective for District Highways is to allow safe and efficient moderate to low-speed travel in urban and urbanizing areas for traffic flow, as well as bicycle and pedestrian movements. In addition, the HCRH has design and operational requirements not applicable to other highways in the state.
- The Hood River-White Salmon Bridge over the Columbia River is a privately owned facility, but is part of the National Highway System and provides an important link between Oregon and Washington. The area around the Exit 64 interchange should be managed to facilitate safe and efficient travel through the interchange and Hood River-White Salmon Bridge.

  Objective 1a: The project alternatives meet the requirements of the Federal Interchange Policy and will accommodate design-year (2031) traffic demands as a threshold.

  Objective 1b: The project alternatives are consistent with the OHP requirement that the maximum volume to capacity ratio for the ramp terminals of interchange ramps be the smaller of the values of the volume to capacity ratio for the crossroad or 0.85.

  Objective 1c: Meet or move in the direction of ODOT access management spacing standards for access along interchange crossroads.

  Objective 1d: The project alternatives are consistent with the intent of the Programmatic Agreement for the HCRH.

  Objective 1e: The project alternatives are consistent with the intent of the I-84 Corridor Strategy.

Goal 2: Provide for an adequate system of local roads and streets for access and circulation within the interchange areas that reduces the reliance on the interchanges and on the interchange ramps.~~minimizes local traffic through the interchanges and on the interchange crossroads.~~

Objective 2a: Any necessary supporting improvements to the surface street system have been (or will be) identified in the local comprehensive plan and funding or a funding source for these improvements has been identified.

Objective 2b: While recognizing the urban fabric of Hood River, the project alternatives propose surface street improvements that either meet the ODOT established access management standards or improve on the current conditions.

Objective 2c: The project alternatives propose surface street improvements that will operate adequately over the 20-year planning horizon.

Goal 3: Provide safe and efficient multi-modal travel between the connecting roadways.

Objective 3a: While recognizing existing capacity constraints and consistent with the Programmatic Agreement for the HCRH, the project alternatives will improve safety by adding capacity to reduce congestion and/or correcting geometric conditions that do not meet current standards.

Objective 3b: The project alternatives will improve bicycle and pedestrian safety by providing upgraded bikeways and walkways that meet current standards and include facility infill and extensions where needed to provide a continuous network while respecting the historic streetscape.

Goal 4: Ensure future changes to the planned land use system are consistent with protecting the long-term function of the interchange and the surface street system and the integration of future transportation projects and land use changes.

Objective 4a: The project alternatives were developed in partnership with affected property owners in the interchange area, the City of Hood River, Hood River County, the Oregon Department of Transportation, and other stakeholders, including interchange users.

Objective 4b: The City and County Comprehensive Plans and/or Transportation System Plans are consistent, or will be made consistent, with the project alternatives.

Objective 4c: The project alternatives are consistent with the County's Bike Plan.

Goal 5: Recognize the importance of the interchange function to support local and regional economic development goals and plans.

Objective 5a: The project alternatives are expected to reduce delay for vehicles, including commercial vehicles, accessing the freeway and increase safety.

Objective 5b: The project alternatives would facilitate access to, through, and from businesses in Hood River, while protecting the function and livability of downtown Hood River.

Objective 5c: The project alternatives recognize the importance of recreation and tourism to the regional economy.

Objective 5d: The project alternatives will recognize the local interest in supporting employment growth on the Port Waterfront property north of the Exit 63 interchange.

Goal 6: Ensure that the needs of regional through trips and the timeliness of freight movements are considered when developing and implementing plans and projects on freight routes.

Objective 6a: The project alternatives would facilitate freight access to and from the many industrial, agricultural, and forest products freight destinations in the interchange areas.

Objective 6b: The project alternatives recognize the importance of interstate travel and freight mobility within the corridor by improving mobility and access to the Hood River-White Salmon Bridge.

CHAPTER 3: MANAGEMENT PLAN

This chapter describes plan actions for improving and managing the transportation system in the interchange areas through the year 2031 to maximize the operational life of the I-84 Exit 63 and Exit 64 interchanges, while ensuring that planned growth can be supported. It describes future operations within the interchange areas, identifies transportation improvements for the interchanges and surrounding street network, and includes access management plans to guide the planning of approach locations along the interchange crossroads (2nd Street and Button Bridge Road). Guidance for agency implementation of the IAMP is also provided, including recommended amendments to City and County plans and development codes.

Transportation System Improvements

Transportation system improvements are categorized by mode of travel, including improvements for the pedestrian, bicycle, and motor vehicle networks.

Pedestrian Network Improvements

This category of improvement projects includes those exclusively targeted at improving connectivity for pedestrians within the interchange areas. In addition to these, the Exit 64 Interchange reconstruction project will include sidewalk along the east side of Button Bridge Road from Marina Way through the interchange ramps to the south. Exclusive pedestrian network projects are listed below and illustrated in Figure 3.

A. Construct sidewalk along both sides of OR 35/Button Bridge Road between State Street (Historic Columbia River Highway) and Button Bridge, as well as on the south side of OR 35/Button Bridge Road between Button Bridge and the Exit 64 interchange. The construction of sidewalk between State Street and Button Bridge could be included as part of the proposed OR 35/ State Street intersection improvement project.

B. Explore the feasibility of constructing a multi-use trail under the I-84/Hood River Bridge and along the east side of the Hood River to connect Port Marina Park with State Street (Historic Columbia River Highway) without requiring travel through the Exit 64 interchange. At the north end, this trail would connect to a planned multi-use path that will connect to the Exit 64 interchange area, cross over the Hood River, pass around the shoreline of the Waterfront, and eventually connect to Jaymar Road. There are two separate segments of the trail proposed in this plan:

   Segment 1: Connection between the existing bicycle/pedestrian bridge over the Hood River and the public frontage road (Dock Road) along the south side of I-84 that connects to OR 35 near the north end of Button Bridge. This trail would pass under the I-84/Hood River Bridge. All land required to accommodate this corridor is under public ownership. To complete this route, additional sidewalk should be constructed along at least one side of Dock Road. Bicycles could share the low-volume, low-speed travel lanes with motor vehicles on Dock Road.

Segment 2: Provide a connection between Dock Road and State Street following the existing informal dirt walking path along the eastern bank of the Hood River. This trail would pass under the Union Pacific Railroad Bridge and connect to Dock Road using publicly owned land between tax lots 300 and 400.

For both trail segments, key design issues such as vertical clearance (10-foot minimum) under the bridges and location of the flood plain must be addressed.

Bicycle Network Improvements

This category of improvement projects includes those exclusively targeted at improving connectivity for bicyclists within the interchange areas. In addition to these, the Exit 64 Interchange reconstruction project will include bike lanes along both sides of Button Bridge Road from Marina Way through the interchange ramps to the south. Exclusive bicycle network projects are listed below and illustrated in Figure 4.

A. Provisions for safe bicycle travel are needed through the downtown. Shared lane markings on Cascade Avenue, Oak Street, and State Street have been proposed as part of an update to the City of Hood River Transportation System Plan.

B. Bicycle travel would also benefit from the proposed multi-use trail recommended for pedestrians between Port Marina Park and State Street along the eastern bank of the Hood River.

~~B.~~C. At the time improvements are being developed for the intersection of OR 35 with State Street, bicycle safety and accessibility of the Historic Columbia River Highway shall be addressed, with opportunities for public input provided.

I-84 Exit 63 & Exit 64
Interchange Area Management Plan

Figure 3 Pedestrian Network Improvements

LEGEND

- Study Area
- City Limit
- UGB
- Parcel Boundary
- Railroad

Existing

- Sidewalk
- Multi-Use Path
- Pedestrian Bridge

Future

- Sidewalk Part of Road Project
- Infill/New Sidewalk
- Potential Trail Alignment

0 400 800 1,200

1 inch equals 1,000 feet

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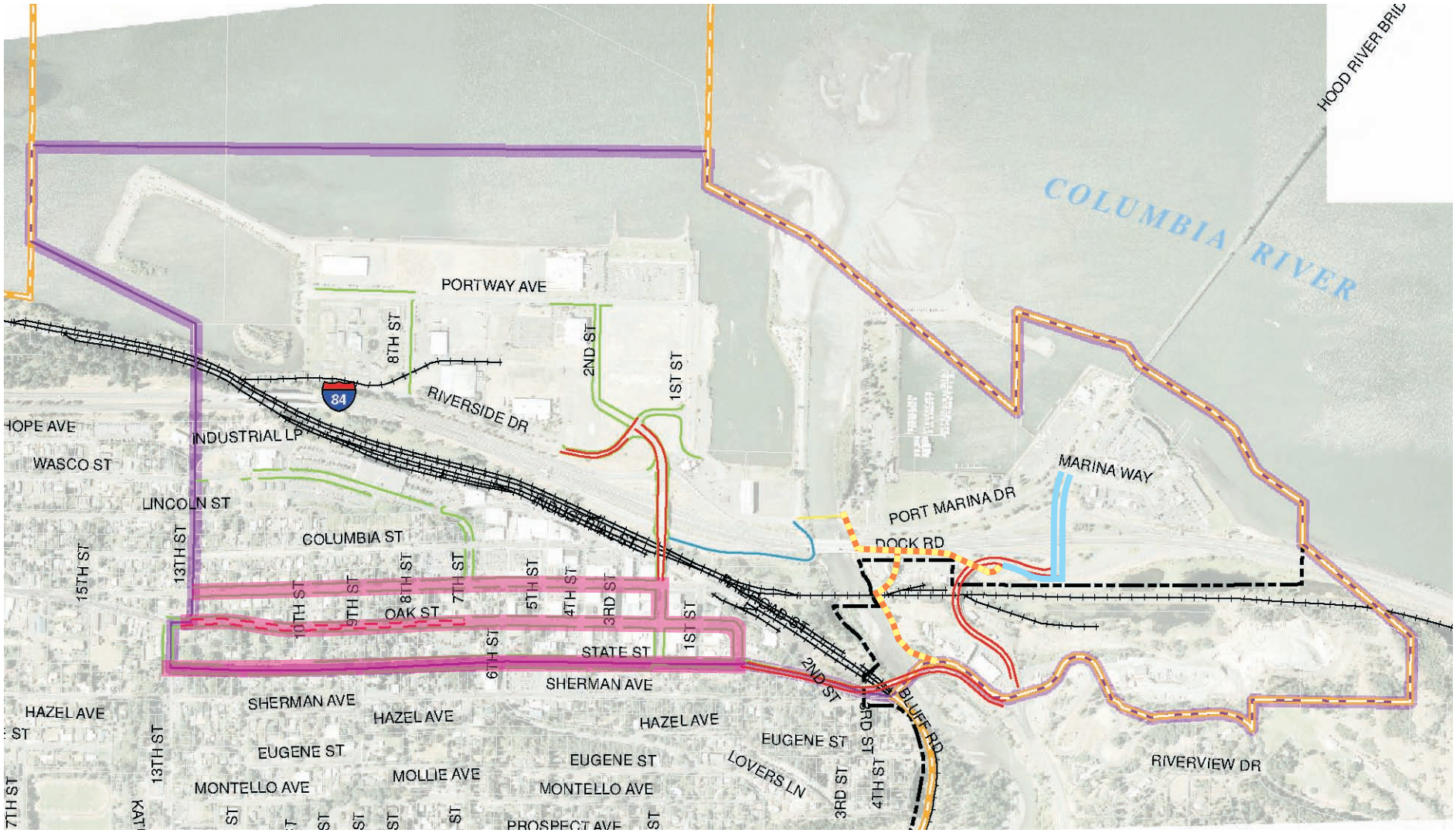

I-84 Exit 63 & Exit 64
Interchange Area Management Plan

Figure 4 Bicycle Network Improvements

LEGEND

- Study Area
- City Limit
- UGB
- Parcel Boundary
- Railroad

Existing

- Shoulder Bikeway
- Partial Shoulder Bikeway
- Sidewalk
- Multi-Use Path
- Pedestrian Bridge

Future

- Bike Lane Part of Road Project
- Shared Lane Markings
- Potential Trail Alignment

0 400 800 1,200

1 inch equals 1,000 feet

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Motor Vehicle Network Improvements

Land Use Assumptions

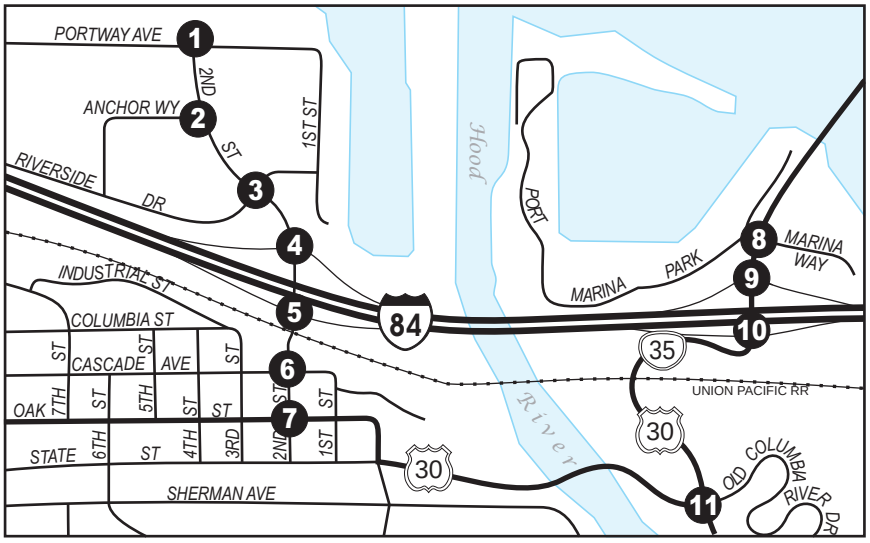
Traffic volume forecasts for the year 2031 were developed through estimation of continued regional growth in through traffic and city-wide growth in housing and employment within the urban growth boundary in a manner that would be consistent with the City of Hood River Comprehensive Plan and Map as of July 2009. The growth in local development would be consistent with full buildout of lands within the Exit 63 and Exit 64 interchange areas, including the Waterfront north of Exit 63. When forecasting future growth within the Waterfront area, land use assumptions were refined by modeling growth according to master planning completed by the Port of Hood River for the area bounded by Portway Avenue, 8th Street, Riverside Drive, and 2nd Street.[4] A detailed description of land use assumptions for the year 2031 is included in the appendix.

Future Traffic Volumes

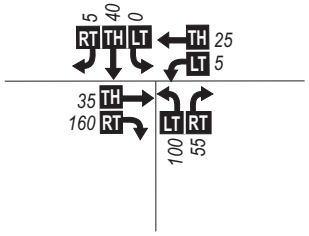
Traffic volume forecasts were developed for two time periods of interest for the I-84 Exit 63 and Exit 64 interchange areas: the summer Sunday p.m. peak hour and the summer weekday p.m. peak hour. The summer Sunday p.m. peak hour represents the 30th highest annual hour of traffic for I-84, which is the time period used by ODOT for design purposes. The summer weekday p.m. peak hour represents the time period where local commuting traffic combines with recreational traffic and often reflects a more appropriate design hour for the local transportation system.

Figures 5 and 6 display the forecasted turning movement volumes at study intersections for the year 2031 during the weekday and Sunday p.m. peak hour scenarios, respectively. Much of the growth in traffic to 2031 in the Exit 63 and Exit 64 interchange areas is attributed to growth at the Waterfront north of the Exit 63 interchange, employment growth in downtown Hood River, and continued growth in traffic across the Hood River-White Salmon Bridge. However, Exit 63 is also an important travel route for vehicles traveling to the south area of the city and to the Heights area along 13th Street.

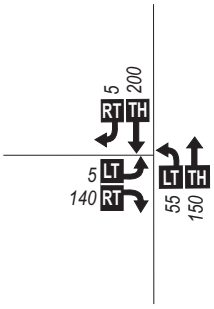
[4] *Port of Hood River Central Area Build-Out Scenario*, Group Mackenzie, May 19, 2008.



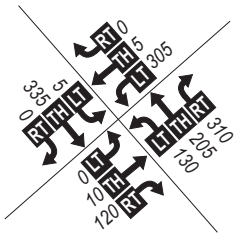
1 Portway Ave. @ 2nd St.



2 Anchor Wy. @ 2nd St.

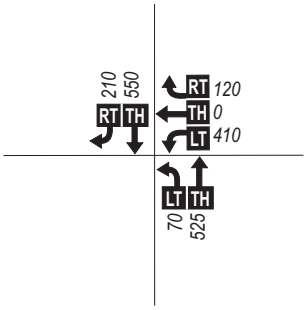


3 Riverside Dr. @ 2nd St.

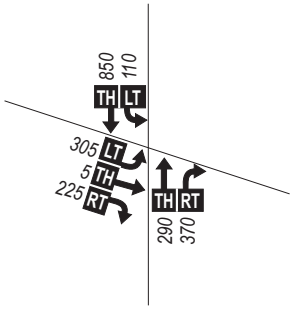


Traffic volumes shown at 2nd St./Riverside Dr. illustrate the demand for each movement with no turning restrictions in place and no alternative route provided for drivers entering or leaving the east approach. Volumes at intersections 1, 2, and 3 may vary with the type of mitigation implemented at the 2nd St./Riverside Dr. intersection.

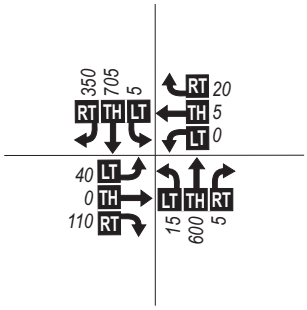
4 I-84 WB On/Off Ramps @ 2nd St.



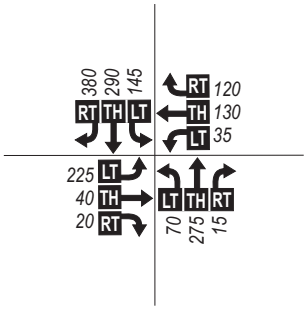
5 I-84 EB On/Off Ramps @ 2nd St.



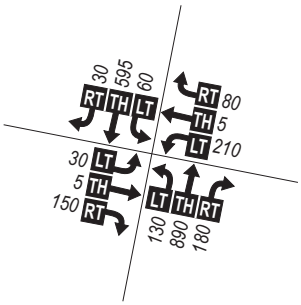
6 Cascade Ave. @ 2nd St.



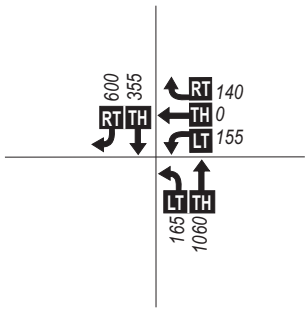
7 Oak St. @ 2nd St.



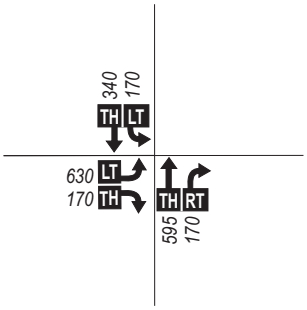
8 Marina Wy. @ Button Bridge Rd.



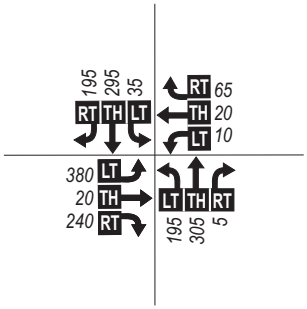
9 I-84 WB On/Off Ramps @ Button Bridge Rd.



10 I-84 EB On/Off Ramps @ Button Bridge Rd.



11 State St. @ OR 35



I-84 Exit 63 & Exit 64
Interchange Area Management Plan

Figure 5 2031 Weekday PM Peak Hour Traffic Volumes

LEGEND

- 0 - Study Intersection & Number
- RT 00 - Right Turn Movement Traffic Volume
- TH 00 - Through Movement Traffic Volume
- LT 00 - Left Turn Movement Traffic Volume

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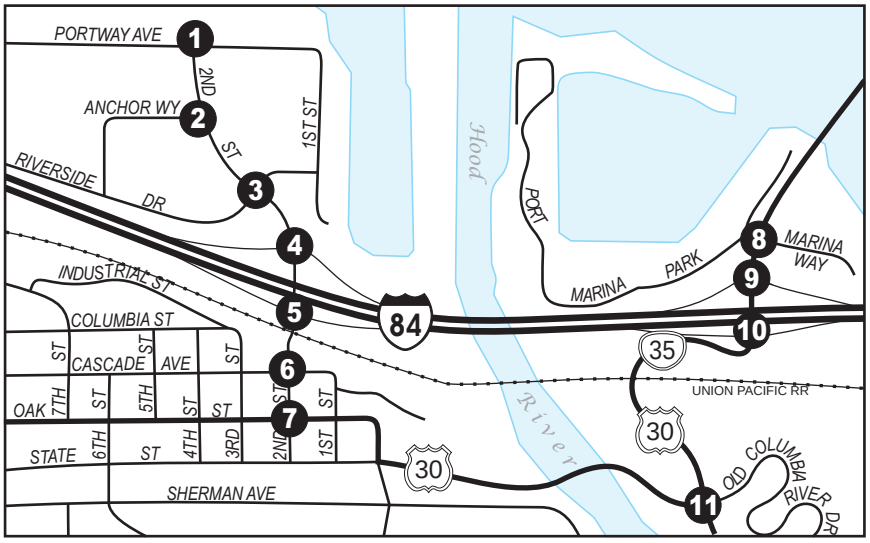
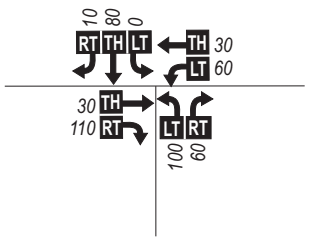
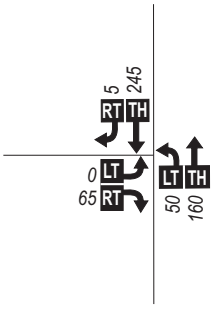


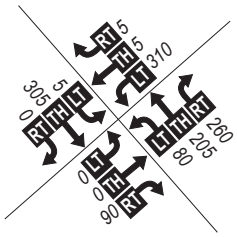
1 Portway Ave. @ 2nd St.



2 Anchor Wy. @ 2nd St.

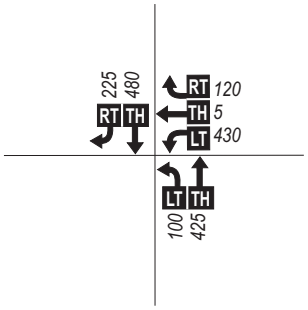


3 Riverside Dr. @ 2nd St.

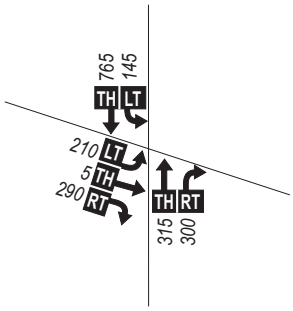


Traffic volumes shown at 2nd St./Riverside Dr. illustrate the demand for each movement with no turning restrictions in place and no alternative route provided for drivers entering or leaving the east approach. Volumes at intersections 1, 2, and 3 may vary with the type of mitigation implemented at the 2nd St./Riverside Dr. intersection.

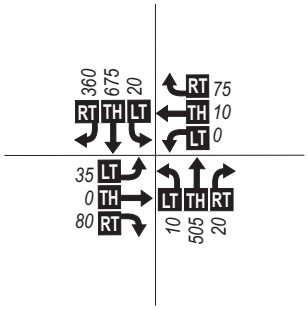
4 I-84 WB On/Off Ramps @ 2nd St.



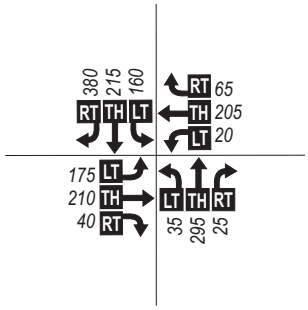
5 I-84 EB On/Off Ramps @ 2nd St.



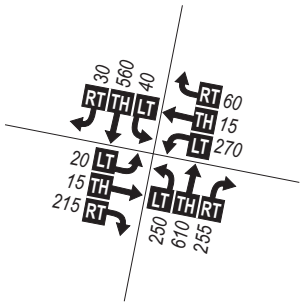
6 Cascade Ave. @ 2nd St.



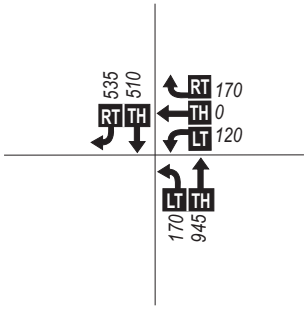
7 Oak St. @ 2nd St.



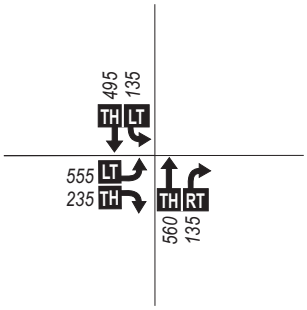
8 Marina Wy. @ Button Bridge Rd.



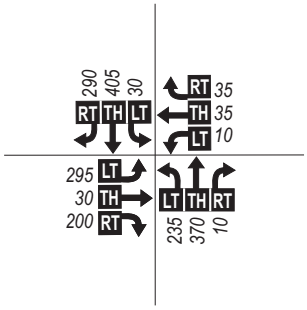
9 I-84 WB On/Off Ramps @ Button Bridge Rd.



10 I-84 EB On/Off Ramps @ Button Bridge Rd.



11 State St. @ OR 35



I-84 Exit 63 & Exit 64
Interchange Area Management Plan

Figure 6 2031 Sunday PM Peak Hour Traffic Volumes

LEGEND

- 0 - Study Intersection & Number
- RT 00 - Right Turn Movement Traffic Volume
- TH 00 - Through Movement Traffic Volume
- LT 00 - Left Turn Movement Traffic Volume

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Mobility Standards

ODOT, the City of Hood River, and Hood River County have adopted mobility standards for transportation facilities under their jurisdiction that require a minimum level of acceptable performance. While ODOT maintains jurisdiction of most study intersections within the Exit 63 and Exit 64 interchange areas, the City of Hood River applies the most restrictive standard where a transportation facility within the City Limits is maintained by ODOT or the County. For non-ODOT facilities that are outside of the City Limits, the County mobility standards apply.

Through the recent 2011 update of the City of Hood River's Transportation System Plan, the City's mobility standard changed from requiring a level of service C to only requiring a level of service D on City roadways. This change was primarily in response to the increasing difficultly of funding transportation improvement projects in a timely manner to support new development. The City of Hood River's mobility standards are included in the 2011 City of Hood River Transportation System Plan. Under Goal 4, Policy 4 states, "A minimum level of service (LOS) D on transportation systems serving new developments is desired on streets and signalized and unsignalized intersections. Level of service shall be based on the most recent edition of the Highway Capacity Manual. Where a facility is maintained by the County or ODOT, the more restrictive of the standards should apply."[5]

To maintain consistency with City mobility standards, it is recommended that Hood River County amend their mobility standards to allow LOS D operations (a LOS C is currently required) within the City of Hood River urban growth area.

ODOT mobility standards are given as volume to capacity (V/C) ratios and are based on roadway classification, designations, and posted speed limits. There are two types of mobility standards for state facilities that are used for different purposes. Those contained in ODOT's 1999 Oregon Highway Plan (OHP) are applied to the review of development proposals and for the determination of needed infrastructure improvements (i.e., No Build conditions). However, the mobility standards from ODOT's Highway Design Manual (HDM)[6] are to be applied to the evaluation of all alternatives considered for roadway improvements through public investments.

Table 2 lists the mobility standards from the OHP and HDM that are applicable to Exit 63 and Exit 64 interchange area facilities (I-84 is classified as an Interstate Highway, 2nd Street and Button Bridge Road are classified as Local Interest Roads, Oak Street and the Historic Columbia River Highway are classified as District Highways, and OR 35 is classified as a Statewide Highway and Freight Route). While the recommended improvements included in this plan were designed to comply with the HDM standards, the mobility standards from the OHP will be used for all future interchange area operations monitoring, including the review of development proposals.

In addition to the mobility standards shown in Table 2, special conditions apply at some locations. At unsignalized intersections and road approaches, the volume to capacity ratios shall not be exceeded for either of the state highway approaches that are not stopped. Approaches at which traffic must stop, or otherwise yield the right of way, shall be operated to maintain safe operation of the intersection and all of its approaches and shall not exceed the volume to capacity ratios for District/Local Interest Roads within the urban growth boundary.

[5] *City of Hood River Transportation System Plan*, DKS Associates, June 2011.

[6] *Highway Design Manual*, Oregon Department of Transportation, 2003, p. 10-38.

Table 2: Applicable ODOT Mobility Standards (V/C ratios)

Highway Category	Inside Urban Growth Boundary	
	Non-MPO outside of STA's where non-freeway speed ≤ 35 mph	Non-MPO where non-freeway speed limit ≥ 45mph
Oregon Highway Plan ▪ *Applied to the review of development proposals and for the determination of needed infrastructure improvements (i.e., No Build conditions)*		
Interstate Highways	-	0.70*
Statewide (NHS) Freight Routes	0.80*	-
District Highways/ Local Interest Roads	0.90*	-
Highway Design Manual ▪ *Applied to the evaluation of all alternatives considered for roadway improvements through public investments*		
Interstate Highways	-	0.65
Statewide (NHS) Freight Routes	0.70	-
District Highways/ Local Interest Roads	0.80	-

* The maximum volume to capacity ratio for ramp terminals of interchange ramps shall be the smaller of the values of the volume to capacity ratio for the crossroad or 0.85.

~~In addition to the mobility standards shown in Table 2, special conditions apply at some locations. At unsignalized intersections and road approaches, the volume to capacity ratios shall not be exceeded for either of the state highway approaches that are not stopped. Approaches at which traffic must stop, or otherwise yield the right of way, shall be operated to maintain safe operation of the intersection and all of its approaches and shall not exceed the volume to capacity ratios for District/Local Interest Roads within the urban growth boundary.~~

Roadway Improvements

Roadway improvements will require site plan review pursuant HRMC 17.20 Street and interchange improvements (defined as parking modifications, access removal, new lanes, new streets). The site plan review shall include findings and solutions addressing safety, mobility, and how the grid system, pedestrian system, bike system, parking and economic enterprise will be protected and/or enhanced by the proposed improvments.

Under No Build conditions in the year 2031, the intersections of 2nd Street at Cascade Avenue and OR 35 at State Street were found failing to comply with mobility standards during both the weekday and Sunday peak hours. In addition, the intersection of 2nd Street at Riverside Drive fails during the weekday peak hour. It should be noted that the construction of a traffic signal at the intersection of 2nd Street at Oak Street was assumed to have been completed under the No Build condition since this improvement has already been made a condition of approval on a past land use action.

While the intersection of 2nd Street at Oak Street complies with mobility standards, the queues extending to the north from the future traffic signal interfere with upstream intersections during both the weekday and Sunday peak hours. This queue spillback is significant enough to cause long queues on the I-84 Exit 63 interchange ramps that extend back into or beyond the section of the ramp used for deceleration from freeway travel speeds. This creates a similar situation to what has been a common problem at the I-84 Exit 64 eastbound off-ramp (to be mitigated by the interchange reconstruction project), where ramp queues extend to the freeway and create safety and operational problems. Improvements needed to maintain safe and efficient operations at the study intersections and I-84 Exit 63 freeway off-ramps are described below.

I-84 Exit 63 interchange area motor vehicle improvement projects:

Improvements proposed for the I-84 Exit 63 interchange area are primarily focused on vehicle queue management, especially where those queues could encroach on the freeway mainline. These improvements are illustrated in Figure 7 and described below, including operations at each study intersection in Table 3.

- 2nd Street/ Riverside Drive intersection: Several alternatives were considered for mitigating operations at this intersection in the future when it can no longer comply with mobility standards. These included conversion to two-way stop control, restriction of turning movements, installation of a traffic signal, and construction of a roundabout. Most alternatives could either not provide sufficient capacity to comply with mobility standards, experienced queuing conflicts with the nearby I-84 westbound traffic signal, or required significant right of way acquisition. Only the alternative involving the removal of stop signs on 2nd Street approaches and restriction of turning movements to allow only right-in and right-out turn movements on the Riverside Drive approaches, in addition to allowing southbound lefts from 2nd Street to Riverside Drive was found to provide acceptable operations.

  In response to these findings, the following improvements are recommended in this IAMP as one option for mitigating the 2nd Street/ Riverside Drive intersection in the future:

  Remove stop signs on 2nd Street approaches and restrict turning movements to allow only right-in and right-out turn movements on the Riverside Drive approaches, in addition to allowing southbound lefts from 2nd Street to Riverside Drive. Lane configurations include ~~(see Figure 7)~~:

  - Northbound: shared through/right turn lane
  - Southbound: left turn lane (50' storage), shared through/right turn lane
  - Westbound: right turn lane
  - Eastbound: right turn lane

  In the future, the 2nd Street/ Riverside Drive intersection may no longer comply with mobility standards and restrictions on turning movements may be required. One identified solution involves the removal of stop signs on 2nd Street approaches and restriction of turning movements to allow only right-in and right-out turn movements.- While this solution was found to provide acceptable operations, it could significantly reduce the accessibility of some properties and result in undesirable diversion of traffic through other areas of the Waterfront.

Changes to the 2nd/Riverside intersection should be expected in the future. However, such changes shall occur only when necessary and left turn movement restrictions shall occur only if no other solution is found to be acceptable. -Any solution to mitigating the 2nd Street/ Riverside Drive intersection must be compatible with the long-term ability to safely and efficiently accommodate traffic movements through the I-84 Exit 63 interchange. All property owners in the Waterfront area shall be noticed at the time improvements at the 2nd Street/ Riverside Drive intersection are being considered and shall be allowed the opportunity to participate in the process of developing and selecting appropriate improvements.

~~At the time mitigation is found to be needed, other options can be explored using updated information and analysis. New options for mitigating the 2nd Street/ Riverside Drive intersection must be compatible with the long-term ability to safely and efficiently accommodate traffic movements through the I-84 Exit 63 interchange. All property owners in the Waterfront area shall be noticed at the time improvements at the 2nd Street/ Riverside Drive intersection are being considered and shall be allowed the opportunity to participate in the process of developing and selecting appropriate improvements. The selection of improvements other than those recommended in this plan must be approved by ODOT and the City of Hood River, with amendments to the Hood River I-84 Exit 63 & Exit 64 IAMP adopted by both agencies. City adoption of an amendment would occur through a public hearing, allowing further opportunity for citizen input.~~

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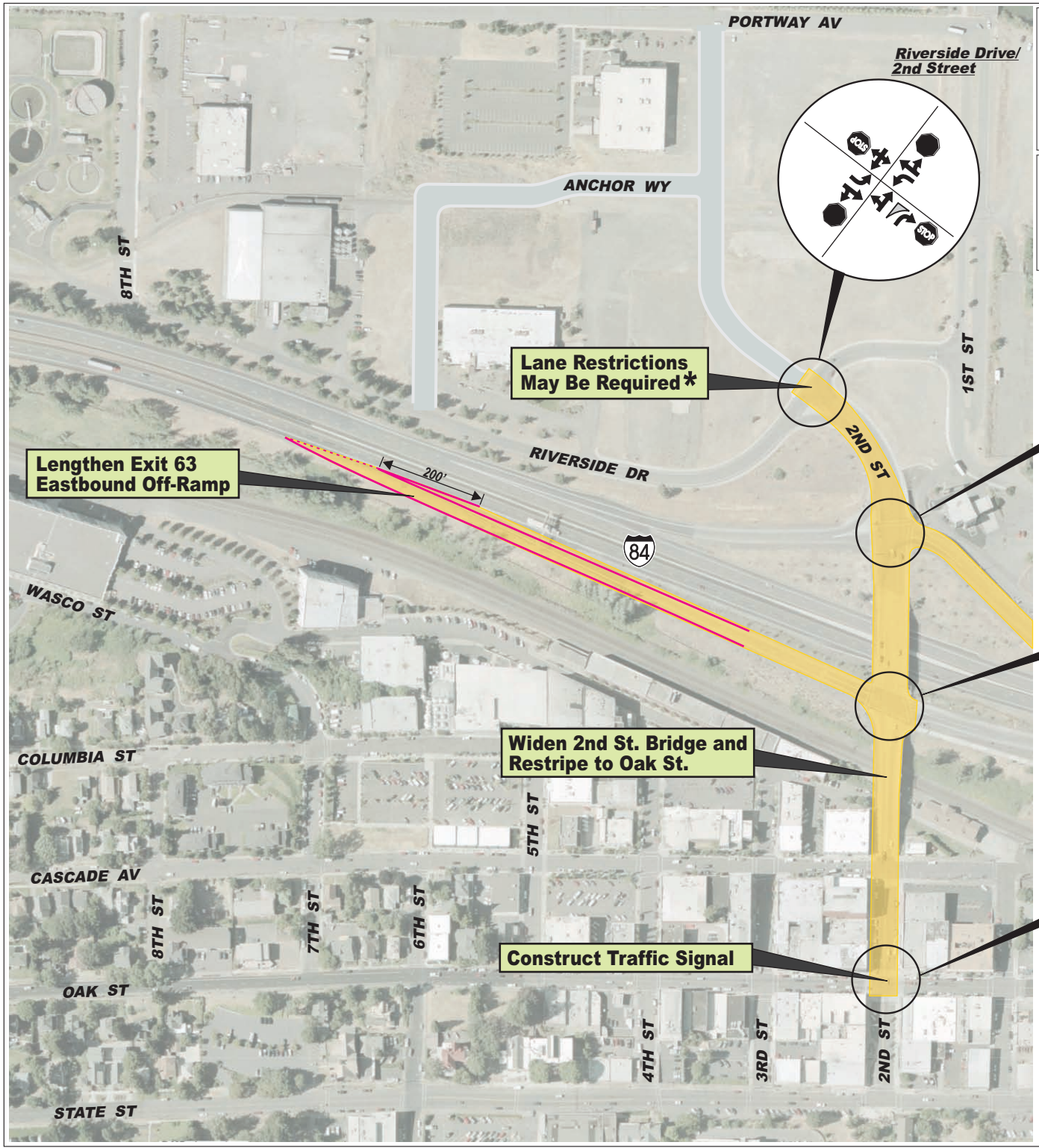
Figure 7

I-84 Exit 63 & Exit 64 IAMP

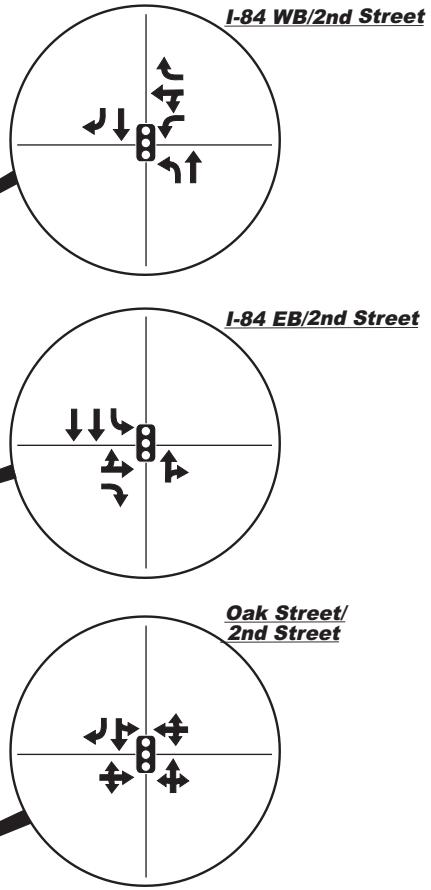
I-84 Exit 63 Interchange Area Improvements



LEGEND

- Lane Configuration
- Area of Improvement
- Stop Sign
- Traffic Signal

NO SCALE



* At the time mitigation is needed, other options will be explored to preserve the function of the interchange.

Table 3: I-84 Exit 63 Interchange Area Intersection Operations (2031)

Intersection	City Mobility Standard (LOS)	ODOT Mobility Standard (V/C ratio) OHP / HDM	Weekday PM Peak Hour						Sunday PM Peak Hour					
			No Build			With Improvements			No Build			With Improvements		
			LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
2nd St/ Portway Ave	D	-	B	10.9	0.22	B	14.0	0.59	B	12.7	0.28	C	15.5	0.69
2nd St/ Anchor Wy	D	-	B	10.5	0.19	B	14.7	0.29	B	10.4	0.10	B	13.8	0.15
2nd St/ Riverside Dr	D	0.90 / 0.80	**E**	**40.6**	**0.94**	C	15.7	0.26	D	29.0	0.84	B	14.4	0.19
2nd St/ I-84 WB	D	0.85 / 0.65	C	20.2	0.74	B	15.1	0.60	C	20.0	0.71	B	12.6	0.50
2nd St/ I-84 EB	D	0.85 / 0.65	B	18.9	0.81	**B**	**16.7**	**0.74**	B	14.8	0.68	B	13.6	0.57
2nd St/ Cascade Ave	D	-				**E**	**42.4**	**0.64**	**F**	**81.0**	**0.78**	**E**	**49.4**	**0.62**
2nd St/ Oak St	D	0.90 / 0.80	B	14.1	0.78	B	18.1	0.77	B	16.5	0.80	C	20.1	0.80

Notes: Shaded cells indicate mobility standard is not met.
ODOT OHP mobility standards apply to the evaluation of No Build conditions and development proposals.
ODOT HDM mobility standards apply to the evaluation of improvements through public investments.

Should turning movements be restricted as recommended, the elimination of left turns out of Riverside Drive to return to I-84 and the downtown will reduce the accessibility of some properties and may result in undesirable diversion of traffic through the industrial areas. Alternatives for addressing Waterfront area local circulation are discussed in the Access Management section of this plan. Depending on which alternative for enhancing local circulation is selected, an additional improvement to install all-way stop control at the intersection of 2nd Street at Portway Avenue may be needed.

- 2nd Street/ I-84 Exit 63 westbound intersection: Add a second westbound left turn lane on the off-ramp. The reconfigured westbound approach on the off-ramp would include:
  - Right turn lane (125' storage)
  - Shared through/left lane
  - Left turn lane (200' storage)

  These improvements are primarily focused on keeping vehicle queues away from the freeway mainline and out of the portion of the off-ramp needed for deceleration from freeway speeds. If recurring congestion and unsafe ramp queues become a problem before these improvements can be funded and constructed, an interim solution includes:

  - Install queue detection devices on the I-84 Exit 63 westbound off-ramp, communications with ODOT's Traffic Management Operations Center, and surveillance cameras for viewing the off-ramp. This will allow for operators to post warning messages on the variable message sign on I-84 westbound entering Hood River when deemed warranted by conditions on the Exit 63 westbound off-ramp.

- 2nd Street/ I-84 Exit 63 eastbound off-ramp: Lengthen the I-84 Exit 63 eastbound off-ramp by 200 feet to provide additional queue storage as follows:
  - Shared through/left lane
  - Right turn lane (250' storage)

  This intersection is shown in Table 3 as failing to meet mobility standards with these improvements in place during the weekday p.m. peak hour in 2031. While the City's mobility standards will be met, as well as ODOT's mobility standards from the OHP, ODOT's mobility standards from the HDM will not be. However, a design exception from ODOT will be sought based on the following:

  a. While the weekday p.m. peak hour is a time period of interest for facility design, it is the Sunday p.m. peak hour that represents the 30th highest annual hour of traffic in this area. Because the HDM mobility standards are to be applied to the 30th highest annual hour of traffic, they may not be directly applicable during the weekday.
  b. Operations at this intersection are improved compared to the No Build condition and continue to meet OHP mobility standards, providing more capacity for future growth.

c. This intersection meets OHP mobility standards under No Build conditions and was not in need of improvement to comply with mobility standards. Rather, improvements were made to address safety needs related to interchange area queue management.

d. The I-84 Exit 63 interchange improvements recommended in this plan are focused on system management rather than modernization. The interchange ramp terminals will have adequate capacity to serve future demand. However, improvements are needed to address vehicle queuing through the interchange, which is a result of the capacity-constrained downtown area immediately adjacent to the interchange.

- 2nd Street Improvements: Widen the 2nd Street overcrossings of I-84 and the Union Pacific Railroad to add a second southbound through lane. Widening is recommended to occur on the east side to fit available right of way and provide an opportunity to correct the existing sight distance problem for pedestrians on the southeast corner of the 2nd Street/ I-84 eastbound intersection. ~~Remove parking on 2nd Street between Cascade Avenue and Oak Street and restripe the roadway to provide a second southbound through lane, dropping as a right turn lane at Oak Street.~~

- 2nd Street/ Cascade Avenue intersection: Traditionally, interchange crossroads are designed as arterial or collector streets that are able to gradually distribute large volumes of traffic away from the freeway system to many destinations on the surface streets. To do this effectively generally requires that the crossroad be managed such that direct access is limited within several hundred feet of the interchange.

  While 2nd Street is designated as a collector street, the close proximity of Hood River's downtown limits the ability of 2nd Street to safely and efficiently move traffic away from the interchange as desired. To facilitate this, the City of Hood River had previously placed a condition of approval on a land use action requiring that the intersection on 2nd Street at Cascade Avenue be restricted such that only right-in and right-out turning movements could be made to and from the Cascade Avenue approaches. However, given the potential impacts to traffic circulation in the surrounding area within the downtown that could create other safety and operational problems, this action is no longer desired.

  Through discussions with ODOT regarding the management of the 2nd Street corridor south of I-84, the City of Hood River has determined that the best approach is to leave the 2nd Street at Cascade Avenue intersection in its current condition with no mitigation. As opposed to the previous plan to restrict turning movements, leaving the intersection as-is provides a better balance between facilitating interchange operations and preserving the function of the downtown. Within the downtown, there are a number of important issues that must be considered, such as the preservation of parking, provision of a safe and convenient walking environment, truck access to the industrial area north of Columbia Street, and reasonable motor vehicle circulation and access to businesses.

  In leaving 2nd Street at Cascade Avenue intersection in its current configuration, it is acknowledged that it will be unable to comply with the City's mobility standard, which requires operation at a level

of service D or better. Therefore, as part of an overall interchange and downtown management strategy, the City will allow for an exception from the mobility standard at this intersection.~~.~~

- 2nd Street/ Oak Street intersection: Construct traffic signal (already planned as a condition of approval on a past land use action). The built environment in the downtown limits the ability to implement further capacity improvements, such as separate turning lanes, without the elimination of on-street parking. Therefore, no new turning lanes are recommended at this time. The primary operational concerns for this intersection should be focused on managing queues so they don't compromise interchange safety and on pedestrian crossing safety.

I-84 Exit 64 interchange area motor vehicle improvement projects:

The current project to reconstruct the I-84 Exit 64 interchange will address a majority of the motor vehicle needs in this area through the year 2031. However, the intersection of OR 35 at State Street will require improvements as described below. Forecasted intersection operations for key intersections within the Exit 64 interchange area are shown in Table 4.

- OR 35/ State Street intersection: Construct traffic signal and modify lane configurations on intersection approaches to include:
  - Northbound: left turn lane (250' storage), shared through/right turn lane
  - Southbound: left turn lane (125' storage), through lane, right turn lane
  - Westbound: left turn lane (75' storage), shared through/right turn lane
  - Eastbound: left turn lane, through lane (150' storage), right turn lane separated from intersection (as existing)

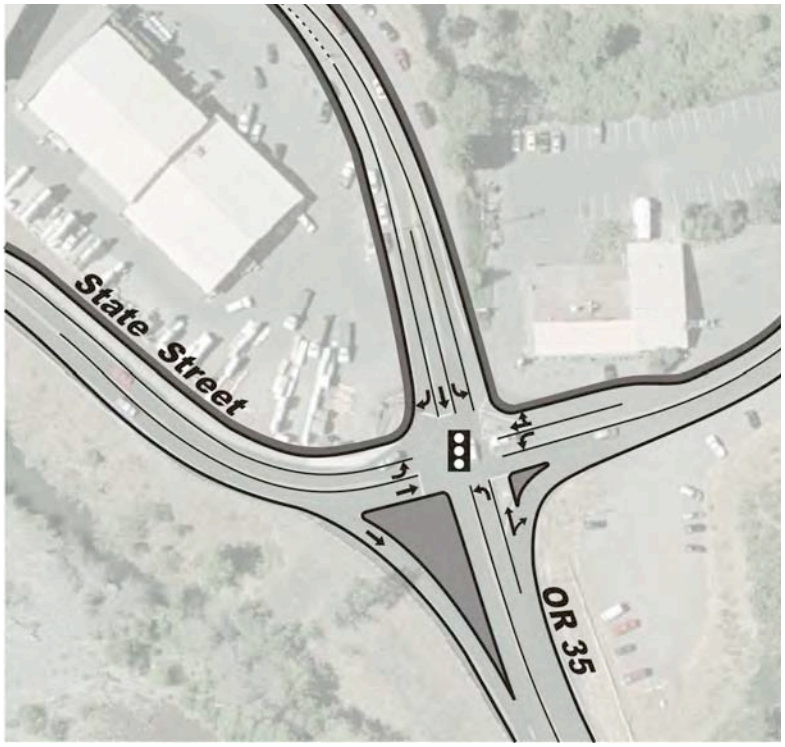


Figure 8: Recommended Improvements at OR 35 / State St.

The construction of a traffic signal and associated turning lanes as recommended would have right of way impacts, which may require National Scenic Area review for improvements outside of the urban growth area (south of State Street/ Historic Columbia River Highway). However, a traffic signal will allow different timing plans to be implemented in response to changing demands during seasonal and event peak traffic times. The type of traffic

control used for the eastbound right turn from State Street to OR 35 (e.g., signalized, yield, free movement) was assumed to be a free right turn movement into the existing second southbound lane on OR 35. However, should motor vehicle conflicts with bicycles and pedestrians become a concern, this movement could be signalized as well. Bicycle safety was raised as a specific concern at this intersection and must be carefully addressed during design.

Table 4: I-84 Exit 64 Interchange Area Intersection Operations (2031)

Intersection	City Mobility Standard (LOS)	ODOT Mobility Standard (V/C ratio) OHP / HDM	Weekday PM Peak Hour						Sunday PM Peak Hour					
			No Build			With Improvements			No Build			With Improvements		
			LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
Button Bridge Rd/ Marina Wy	D	0.90 / 0.80	B	11.6	0.58	B	12.7	0.58	B	16.8	0.67	B	17.7	0.67
Button Bridge Rd/ I-84 WB	D	0.85 / 0.65	A	8.4	0.49	A	7.9	0.49	A	6.6	0.43	A	7.1	0.43
Button Bridge Rd/ I-84 EB	D	0.85 / 0.65	B	17.0	0.59	B	16.9	0.59	B	14.2	0.57	B	14.4	0.57
OR 35/ State St	D	0.80 / 0.70	**F**	**>60.0**	**>1.00**	C	20.8	0.64	**F**	**>60.0**	**>1.00**	C	22.5	0.59

Notes: Shaded cells indicate mobility standard is not met.
No Build condition includes reconstruction of the Exit 64 interchange - to be completed in 2011.
ODOT OHP mobility standards apply to the evaluation of No Build conditions and development proposals.
ODOT HDM mobility standards apply to the evaluation of improvements through public investments.

Access Management Plan

The purpose of the Access Management Plan is to provide a long-range, comprehensive and coordinated strategy for accommodating access as property develops or as public improvement projects are constructed. It is anticipated that most improvements will occur incrementally over time. The goal of the plan is to provide clear direction and ensure progress is made toward improving the management of access in the interchange areas, while allowing sufficient flexibility to accommodate future development plans. Successful implementation will require continued collaboration between neighboring property owners, the City of Hood River, Hood River County, and ODOT staff.

Access Objectives

To provide a basis for decision-making during the development of the access management plan and to guide future policy decisions for the I-84 Exit 63 and Exit 64 interchange areas, a set of access management objectives was established. Given the constraints in the interchange areas, the objectives were used as guidelines and may not be applicable in all instances.

These objectives were intended to reflect current practices, policies, and regulations pertaining to the management of access within the interchange areas and include the following:

1. Create shared access points to reduce the overall number of accesses on the interchange area crossroads.
2. Provide inter-parcel circulation through cross-over easements, shared parking lots, or connecting driveways where feasible.
3. Seek opportunities to avoid turning conflicts when positioning approaches on opposite sides of roadways.
4. Utilize easements, frontage/backage roads, and other City streets to allow for secondary access to facilitate large truck and emergency service vehicle circulation.
5. Prohibit or restrict movements to accesses adjacent to turning pockets at signalized intersections.
6. Ensure that all properties are provided reasonable access to the public street network.
7. Meet, or move in the direction of meeting, ODOT's adopted access management spacing standards for Interchange Areas, as documented in the *1999 Oregon Highway Plan* (as amended 2006). Applicable spacing standards for the I-84 Exit 63 and Exit 64 interchange areas are shown in Table 5 and Table 6, respectively.

Table 5: I-84 Exit 63 Interchange Area Access Spacing Standards

Type of Access Point	Minimum Spacing Dimension*
Distance between ramp terminal and first major intersection on 2nd St.	1,320 feet
Distance between ramp terminal and first directional median opening on 2nd St.	1,320 feet
Distance between ramp terminal and last right-in/right-out approach on the right side of 2nd St. (when moving toward I-84)	750 feet
Distance between ramp terminal and first right-in/right-out approach on the right side of 2nd St. (when moving away from I-84)	750 feet

* Spacing standards for Freeway Interchanges with Two-lane Crossroads

Table 6: I-84 Exit 64 Interchange Area Access Spacing Standards

Type of Access Point	Minimum Spacing Dimension*
Distance between ramp terminal and first major intersection on Button Bridge Rd.	1,320 feet
Distance between ramp terminal and first directional median opening on Button Bridge Rd.	1,320 feet
Distance between ramp terminal and last right-in/right-out approach on the right side of Button Bridge Rd. (when moving toward I-84)	990 feet
Distance between ramp terminal and first right-in/right-out approach on the right side of Button Bridge Rd. (when moving away from I-84)	750 feet

* Spacing standards for Freeway Interchanges with Multi-lane Crossroads

Access Recommendations

The implementation of the access management plan is anticipated to occur incrementally over a long period of time through property development/redevelopment or public construction projects. The framework for the plan provides a structure of existing and planned public streets to work within and guidance for improvements on area properties to work toward the ultimate goal.

A key outcome of this plan is a reduction in direct access to interchange area crossroads, while maintaining the accessibility of abutting properties. Accomplishing this will require a combination of improvements to the public street infrastructure as well as cooperation among neighboring properties to establish effective access ways between businesses. This could include creating agreements to establish shared driveways or parking lots to establish inter-parcel circulation.

To help identify groups of properties where collaborate access planning and coordination are recommended, "Access Management Blocks" have been outlined in Figure 9 and Figure 10. For each block shown, the recommended plan for establishing property access will be documented for future reference. In planning for future access, property owners may elect to work around existing development or assume the site would be redeveloped in the future. Cooperation between property owners within access management blocks, as well as between access management blocks, will be essential for maximizing business accessibility throughout the interchange areas.

The access management block planning approach is intended to provide enough certainty and structure to guide future development and ensure progress is made toward the ultimate goal, but to also allow for enough flexibility to accommodate a variety of future development plans and site designs. However, the provision of this flexibility will require continued collaboration between property owners, City of Hood River, Hood River County, and ODOT staff as future development is proposed or as public improvement projects are planned to ensure each action is consistent with the intent of the plan and is compatible with the access needs of other properties.

The I-84 Exit 63 and Exit 64 interchange areas have been divided into 14 access management blocks, with many consisting of several adjacent parcels that have similar access constraints. Access recommendations have been provided for each access management block below, corresponding with Figures 9 and 10. It is anticipated that the following recommendations will be modified following coordination with area property owners, the City of Hood River, Hood River County, and ODOT. However, site plan review will be required pursuant HRMC 17.20 Street and interchange improvements (defined as parking removal, access removal, new lanes, new streets). The site plan review shall include findings and solutions addressing safety, mobility, and how the grid system, pedestrian system, bike system, parking and economic enterprise will be protected and/or enhanced by the proposed.

LEGEND

- Access Management Block
- Tax Lot

* At the time mitigation is needed, other options will be explored to preserve the function of the interchange.

NO SCALE

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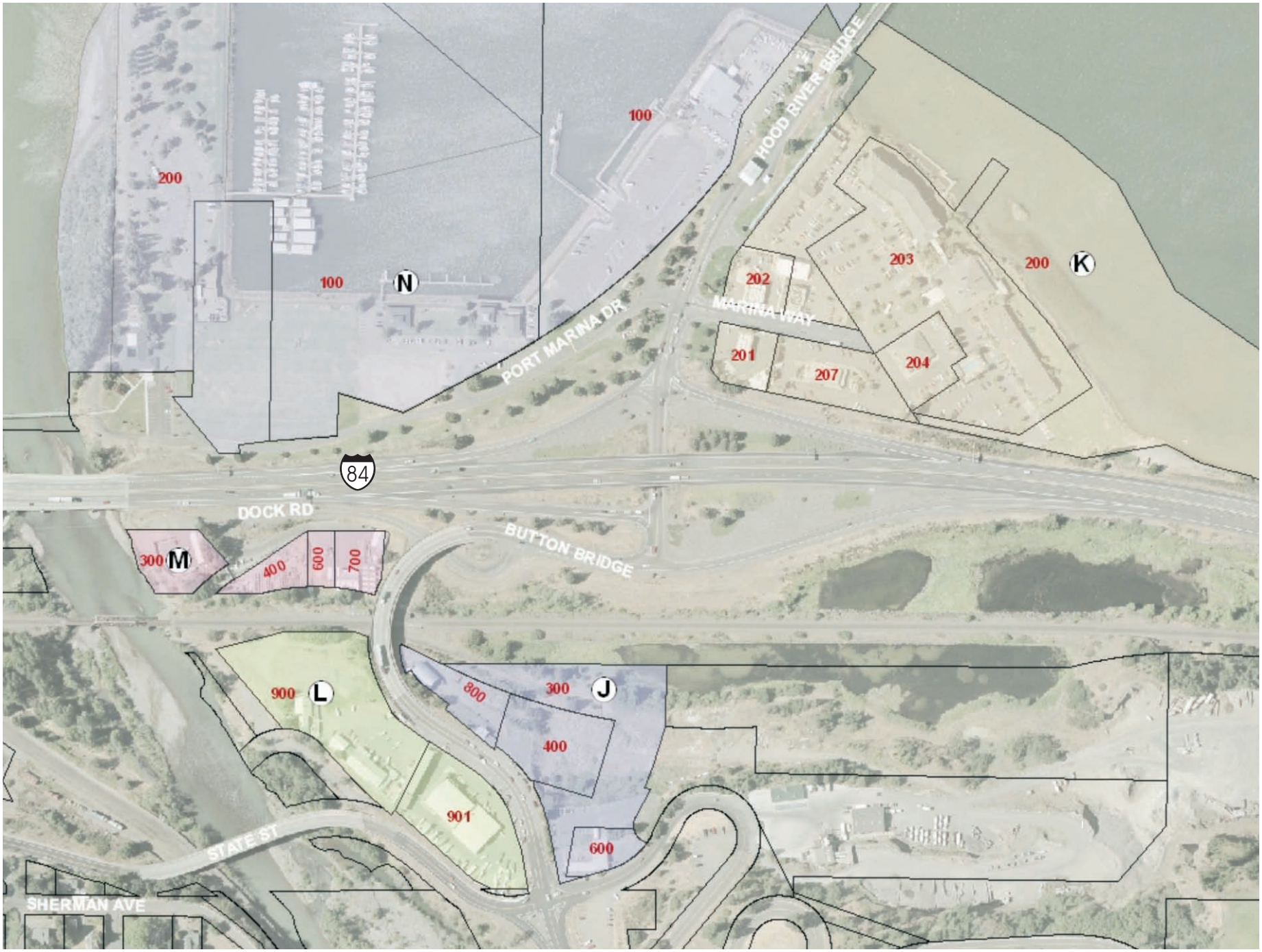
Figure 9

I-84 Exit 63 Interchange Area Access Management Blocks



LEGEND

- Access Management Block
- Tax Lot

NO SCALE

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Figure 10

I-84 Exit 64 Interchange Area Access Management Blocks

Block A	
Existing Constraints:	**Future Recommendations:**
Block A includes one city block within Hood River's downtown. Access needs and opportunities are limited by the character of development in the downtown where properties are largely covered by buildings and on-street parking replaces the need for on-site parking.	Minimizing access points within the downtown allows for more on-street parking and reduces conflicts between pedestrians and motor vehicles where drivers would cross the sidewalk. There is currently one private access point directly to 2nd Street serving the City Hall and Police. As future site redevelopment occurs (including a new use replacing the City Hall and Police functions), the number of access points to Block A should be minimized with a priority placed on the elimination of access directly to 2nd Street (the primary route for traveling to and from the I-84 interchange).
Block B	
Existing Constraints:	**Future Recommendations:**
Block B includes one city block within Hood River's downtown and a small parcel adjacent to the east side of the 2nd Street bridge over the railroad tracks. Access needs and opportunities are limited by the character of development in the downtown where properties are largely covered by buildings and on-street parking replaces the need for on-site parking.	Minimizing access points within the downtown allows for more on-street parking and reduces conflicts between pedestrians and motor vehicles where drivers would cross the sidewalk. There are currently no private access points directly to 2nd Street from Block B. As future site redevelopment occurs, the number of access points to Block B should be minimized with a priority placed on avoiding access directly to 2nd Street (the primary route for traveling to and from the I-84 interchange).
Block C	
Existing Constraints:	**Future Recommendations:**
Access to Block C is constrained by the Columbia River to the north, the Hood River to the east, and I-84 to the south. Currently, a frontage road leading to Riverside Drive is the only means of access for this block.	With no future plans to construct new roadways in this area, the frontage road leading to Riverside Drive should continue to be used as the primary means of access to Block C.

Block D	
Existing Constraints: Access to Block D is constrained by the proximity to the westbound I-84 ramp terminals on 2nd Street to the west.	**Future Recommendations:** The primary means of access to Block D should be through Riverside Drive and a ~~1st~~ future Street. The number of direct access points to Block D should be minimized to avoid additional conflicts in the vicinity of the street intersections surrounding the property. Access points shall not be established directly to 2nd Street to avoid introducing turning conflicts within the interchange influence area.
Block E	
Existing Constraints: Block E is bound by roadways on all sides, including a private roadway (1st Street) that is part of the east end of the block. All of these roadways are physically accessible, but various street intersections create locations where turning conflicts could occur.	**Future Recommendations:** Because 2nd Street is the crossroad of the I-84 interchange, direct access should be minimized and located no further south than Anchor Way. Access points to Riverside Drive and Portway Avenue should be located far enough from nearby intersections to avoid turning conflicts.
Block F	
Existing Constraints: Block F includes one city block within Hood River's downtown. Access needs and opportunities are limited by the character of development in the downtown where properties are largely covered by buildings and on-street parking replaces the need for on-site parking.	**Future Recommendations:** Minimizing access points within the downtown allows for more on-street parking and reduces conflicts between pedestrians and motor vehicles where drivers would cross the sidewalk. There are currently no private access points directly to 2nd Street from Block F. As future site redevelopment occurs, the number of access points to Block F should be minimized with a priority placed on avoiding access directly to 2nd Street (the primary route for traveling to and from the I-84 interchange).
Block G	
Existing Constraints: Block G includes two city blocks within Hood River's downtown. Access needs and opportunities are limited by the character of development in the downtown where properties are largely covered by buildings and on-street parking replaces the need for on-site parking.	**Future Recommendations:** Minimizing access points within the downtown allows for more on-street parking and reduces conflicts between pedestrians and motor vehicles where drivers would cross the sidewalk. There are currently no private access points directly to 2nd Street from Block G. As future site redevelopment occurs, the number of access points to Block G should be minimized with a priority placed on avoiding access directly to 2nd Street (the primary route for traveling to and from the I-84 interchange).

Block H	
Existing Constraints: Access to Block H is constrained by the presence of I-84 to the south and a combination of the topography and the proximity of the I-84 westbound ramp terminal to the east.	**Future Recommendations:** Access to Block H shall be established from Riverside Drive. The location of access to Riverside Drive should provide adequate separation from the intersection with 2nd Street to avoid potential conflicts.
Block I	
Existing Constraints: Block I is bound by roadways on all sides and has the newly constructed Anchor Way running through it connecting Riverside Drive on the south to 2nd Street on the east. All of these roadways are physically accessible, but various street intersections create locations where turning conflicts could occur.	**Future Recommendations:** Because 2nd Street is the crossroad of the I-84 interchange, any direct access to 2nd Street north of Anchor Way should be consolidated through the existing Anchor Way intersection. Access points to Riverside Drive, Portway Avenue, and 8th Street should be located far enough from nearby intersections to avoid turning conflicts.
Block J	
Existing Constraints: Access to Block J is constrained by the railroad tracks and topography to the north and east, while the proximity to the OR 35/ State Street/ Historic Columbia River Highway intersection and Button Bridge limit access opportunities to the west and south.	**Future Recommendations:** Given the limited amount of property frontage on OR 35 and the Historic Columbia River Highway, access points should be minimized through the establishment of shared accesses between properties/businesses where feasible. Shared access points should be supported by the provision of cross-over easements between properties and internal connecting roadways or parking lots allowing for inter-parcel circulation. When establishing future access points, the distance from the OR 35/ State Street/ Historic Columbia River Highway intersection should be maximized to avoid conflicts within the intersection influence area. However, careful consideration must also be given to ensure adequate sight distance will remain to the north (curve and Button Bridge railing) and east (horizontal curve in highway).

Block K	
Existing Constraints: Access to Block K is constrained by the proximity to the I-84 westbound ramp terminals, the Hood River-White Salmon Bridge tollbooth, and the Columbia River.	**Future Recommendations:** Given the constraints noted above, access opportunities are limited. The number of access points to Button Bridge Road should be minimized and located to avoid conflicts with the closely spaced intersections and tollbooth operations. The access through the signalized intersection of Marina Way should be maintained as the primary access point to all properties within Block K.
Block L	
Existing Constraints: Opportunities for access are limited by the railroad tracks, the Hood River, steep topography, and the proximity to the OR 35/ State Street/ Historic Columbia River Highway intersection.	**Future Recommendations:** Given the steep slopes and proximity to the intersection with OR 35, establishment of direct access to State Street may be difficult. The number of access points to OR 35 should be minimized through the establishment of shared accesses between properties/businesses where feasible. Shared access points should be supported by the provision of cross-over easements between properties and internal connecting roadways or parking lots allowing for inter-parcel circulation. Where existing buildings/infrastructure and site circulation limit the ability to establish shared access points, prior site redevelopment may be required. When establishing future access points to OR 35, the distance from the OR 35/ State Street/ Historic Columbia River Highway intersection should be maximized to avoid conflicts within the intersection influence area. However, careful consideration must also be given to ensure adequate sight distance will remain to the north (curve and Button Bridge railing).
Block M	
Existing Constraints: Access to Block M is constrained by I-84, the Hood River, and the railroad tracks, leaving Dock Road as the only feasible means of access.	**Future Recommendations:** Dock Road should continue to be used for access to Block M.

Block N	
Existing Constraints:	**Future Recommendations:**
Access to Block N is constrained by the Hood River to the west, the Columbia River to the north, I-84 to the south, and the proximity to the I-84 westbound ramp terminals and the Hood River-White Salmon Bridge tollbooth to the east.	Given the constraints noted above, access opportunities are limited. The number of access points to Button Bridge Road should be minimized and located to avoid conflicts with the closely spaced intersections and tollbooth operations. The access through the signalized intersection of Port Marina Drive should be maintained as the primary access point to all properties within Block N.

Waterfront Area Local Circulation

~~When the intersection on 2nd Street at Riverside Drive fails to meet mobility standards,~~ In the future, the 2nd Street/ Riverside Drive intersection may no longer comply with mobility standards and restrictions on turning movements may be required. One identified solution involves the removal of stop signs on 2nd Street approaches and restriction of turning movements to allow only right-in and right-out turn movements. While this solution was found to provide acceptable operations, it could significantly reduce the accessibility of some properties and result in undesirable diversion of traffic through other areas of the Waterfront.

Changes to the 2nd/Riverside intersection should be expected in the future. However, such changes shall occur only when necessary and left turn movement restrictions shall occur only if no other solution is found to be acceptable. Any solution to mitigating the 2nd Street/ Riverside Drive intersection must be compatible with the long-term ability to safely and efficiently accommodate traffic movements through the I-84 Exit 63 interchange. All property owners in the Waterfront area shall be noticed at the time improvements at the 2nd Street/ Riverside Drive intersection are being considered and shall be allowed the opportunity to participate in the process of developing and selecting appropriate improvements.

~~it will be modified to allow only right-in and right-out turn movements, in addition to southbound lefts from 2nd Street to Riverside Drive.[7] As this occurs, some local trips traveling to and from Riverside Drive will be required to find a new route to reach their destination. While adequate alternate routes exist to accommodate this on the west side of 2nd Street, the local street network on the east side is far more limited.~~

~~In this area, the properties in the northeast quadrant of the I-84 Exit 63 interchange that currently rely on Riverside Drive for access will be the most impacted. While accessibility for inbound traffic will be essentially maintained as it is today,[8] outbound traffic will not be able to turn directly south towards the~~

[7] Unless an acceptable alternative is approved by ODOT and the City of Hood River in the future.

[8] Eastbound through movements from the opposite side of Riverside Drive would no longer be allowed, but this movement is in very low demand.

~~freeway or downtown. Today, this movement could be rerouted up 1st Street and around Portway Avenue. However, 1st Street is not under public ownership, so it cannot be relied upon for future traffic circulation.~~

~~Without additional improvements to the local street network in the Waterfront area, trips leaving the east approach of the 2nd Street/ Riverside Drive intersection destined for the freeway or downtown will be required to turn to the north and circle around either Anchor Way or Portway Avenue to return to 2nd Street from the west approach of Riverside Drive, where a right turn can be made to the south. While these routes do provide for basic connectivity, they may not be intuitive or readily understood by drivers unfamiliar with the area. Furthermore, this rerouting will add well over 1,000 trips per day between Anchor Way and Portway Avenue, many of which will be made by passenger cars associated with the fueling station, recreational area, and potential future mixed-use development. This will not only result in 50 to 75% increases in traffic on Anchor Way and Portway Avenue, but will introduce a significant amount of passenger car trips through the industrial areas as well.~~

~~The decision of whether or not to further improve connectivity of the local street network in this area has no direct impact on the I-84 Exit 63 interchange itself. Also, the intersections on 2nd Street at Portway Avenue and Anchor Way will have adequate capacity to serve the extra demand (with all-way stop control at Portway Avenue). Therefore, the matter is primarily one of balancing accessibility, safety, and property impacts and should be discussed at a local level to determine how best to serve transportation needs in the Waterfront. To support this conversation, several alternatives are provided for consideration below.~~

~~One alternative is to make no further improvements to the local street network. This scenario requires virtually no taking of private property in the surrounding area. The consequences of implementing this alternative were previously described.~~

~~A second alternative includes a transfer of 1st Street to public ownership to ensure a connection is maintained between Riverside Drive and Portway Avenue. This project would likely require some reconstruction of 1st Street as well. With 1st Street in place, outbound traffic from the properties in the northeast quadrant of the I-84 Exit 63 interchange would be signed to route around 1st Street and Portway Avenue to return back to the freeway and downtown. As an option, once 1st Street is in place the segment of Riverside Drive between 2nd Street and 1st Street could be removed – however, this may degrade the accessibility of some properties for inbound traffic. Furthermore, there would no longer be a need for the southbound left turn from 2nd Street into Riverside Drive, leaving that improvement as optional.~~

~~A third alternative includes the construction of a roundabout on 2nd Street at the intersection with Anchor Way. While outbound trips from the properties in the northeast quadrant of the I-84 Exit 63 interchange would still be required to turn to the north on 2nd Street from Riverside Drive, they would now be able to make a U-turn using the roundabout rather than traveling along Anchor Way or Portway Avenue. As an added benefit, a well-designed and landscaped center island could act as a gateway feature into the Waterfront area, as well as establish a unique front door for future development to the east. Because of the importance of accommodating trucks in this area, the roundabout should be at least 210 feet in diameter (including sidewalks) and it must be verified that the design will adequately accommodate the types and sizes of trucks associated with local business operations (must at least accommodate a WB-67). The property impacts associated with the roundabout construction are comparable to those associated with the reconstruction of 1st Street, but the location of those impacts could be varied by shifting the roundabout placement.~~

~~Finally, a fourth alternative would be to modify the second alternative so that instead of connecting Riverside Drive to Portway Avenue, the new roadway connects to 2nd Street opposite Anchor Way.~~

~~At the time that an alternative for improving local circulation has been selected (if other than the "no build" alternative), the City should include that project as part of the adopted Transportation System Plan to prevent it from being precluded by future land development. However, another option could be to adopt more than one alternative and allow future development opportunities to determine which one is ultimately selected based on compatibility with each proposed development. Under this scenario, each new development in the Waterfront area would consider each alternative roadway alignment. Then the City, through consultation with affected Waterfront property owners, could potentially eliminate any from further consideration where it is determined that it would conflict with the proposed development and other suitable alternatives are available. This process would continue over time until only one suitable alternative remains.~~

Access Management Plan Phasing

Without a known source of funding or public improvement project planned to follow adoption of the access management plan (beyond the I-84 Exit 64 interchange reconstruction), the timing of any actions will be uncertain. This section provides a general phasing structure for recommended access management plan actions, broken into short, medium, and long range time periods. This is provided to guide plan implementation and is not intended to be strictly adhered to (i.e., a long range action may precede a short range action if the opportunity arises).

Short Range Actions

- Adopt amendments to the City of Hood River Municipal Code needed to implement the access management plan objectives and recommended actions.

Medium Range Actions

- Establish cross-over easements and inter-parcel roadways as part of property development to consolidate and create shared access points.

Long Range Actions

- In the future, the 2nd Street/ Riverside Drive intersection may no longer comply with mobility standards and restrictions on turning movements may be required. One identified solution involves the removal of stop signs on 2nd Street approaches and restriction of turning movements to allow only right-in and right-out turn movements. While this solution was found to provide acceptable operations, it could significantly reduce the accessibility of some properties and result in undesirable diversion of traffic through other areas of the Waterfront.
- Changes to the 2nd/Riverside intersection should be expected in the future. However, such changes shall occur only when necessary and left turn movement restrictions shall occur only if no other solution is found to be acceptable. Any solution to mitigating the 2nd Street/ Riverside Drive intersection must be compatible with the long-term ability to safely and efficiently accommodate traffic movements through the I-84 Exit 63 interchange. All property owners in the Waterfront area shall be noticed at the time improvements at the 2nd Street/ Riverside Drive intersection are being considered and shall be allowed the opportunity to participate in the process of developing and selecting appropriate improvements.

~~- Limit turning movements at the 2nd Street/ Riverside Drive intersection to right-in and right-out only, with southbound left turns from 2nd Street to Riverside Drive allowed as well. Restriction of turning movements as described would occur at such time as traffic analysis shows the intersection failing to meet applicable mobility standards. Alternatively, these restrictions could be applied when it has been demonstrated that the turning movements are creating a hazardous condition. The application of this action assumes no acceptable alternative has been approved by ODOT and the City.~~

Accommodating Increased Development Intensity on the Waterfront

The Hood River Waterfront (Waterfront) is a key area for local job creation and economic development and the City of Hood River, Port of Hood River, and ODOT recognize that higher density development may be desirable. In April 2011, in a collaborative effort between several IAMP stakeholders, a Transportation Impact Analysis (TIA) was prepared for the Port by Group Mackenzie[9] that evaluated transportation impacts likely to result from a magnitude of development that is not presently reflected in State plans. According to the TIA, the existing zoning (Light Industrial and Commercial) could accommodate this potential level of Waterfront Development and the transportation impacts could be mitigated to accommodate adequate operations through the year 2031.

These findings and mitigation steps would need to be verified with an updated TIA at the time a future land use action is submitted. If the trip generation assumptions in the updated TIA exceed the IAMP assumptions, ODOT, the City of Hood River, Hood River County, and the Port of Hood River will work together to identify appropriate measures to accommodate increased densities in the Waterfront area and update the IAMP if necessary.

[9] *Port of Hood River Waterfront Area Transportation Impact Analysis*, Group Mackenzie, April 2011 (included in Appendix K for reference).

Adoption and Implementation

As land continues to develop within the interchange areas, compliance will be required with the access management and circulation plans developed through the IAMP process. As part of the adoption of the IAMP, a number of amendments will be made to state and local documents, plans, and regulations that will implement the IAMP. These include amendments to the City of Hood River and Hood River County Comprehensive Plan, Transportation System Plan, and development codes to reflect amendments contained in the appendix.

ODOT, the City of Hood River, and Hood River County, along with other stakeholders that include the Port of Hood River, have jointly prepared the I-84 Exit 63 & Exit 64 IAMP in recognition of the importance of Interstate 84 and these interchanges for the movement of people and goods to and from the Hood River region. It is anticipated that ODOT, the City, and the County will adopt the IAMP, thereby codifying a joint commitment to protect the function of the interchanges for current and future users, while protecting the function of the surface streets at the same time. The purpose of the IAMP and function of the interchanges are defined in this document. Separate adoption processes for the plans and implementing measures are envisioned for each agency. This section summarizes the implementation roles and responsibilities for the respective jurisdictions.

ODOT/State of Oregon Implementing Actions

Project Construction

- Develop needed transportation system improvements. Some of this work is underway as part of the I-84 Exit 64 interchange reconstruction project, with completion expected in 2011. Additional ODOT improvements, which are described in the plan, are proposed at the Exit 63 interchange and to the OR 35 at State Street intersection. Additional improvements to install queue detection devices on off-ramps and surveillance cameras within the Exit 63 and Exit 64 interchange areas should be advanced as a near-term project.

Agency Coordination

- ODOT will continue to coordinate with the City of Hood River, Hood River County, the Port of Hood River, and with applicable state agencies through the development review process to keep interchange area protections in place. ODOT will also monitor and comment on any future actions that would alter land uses in the vicinity of the interchanges to ensure the IAMP remains consistent with land use plans for the interchange areas.
- In the future when circumstances in the IAMP study area result in the need for changes to the IAMP, the City of Hood River, Hood River County, and ODOT shall prepare amendments to the IAMP management actions and to accompanying funding plans to implement those actions.

Policy Actions

- The Oregon Transportation Commission will adopt the IAMP.

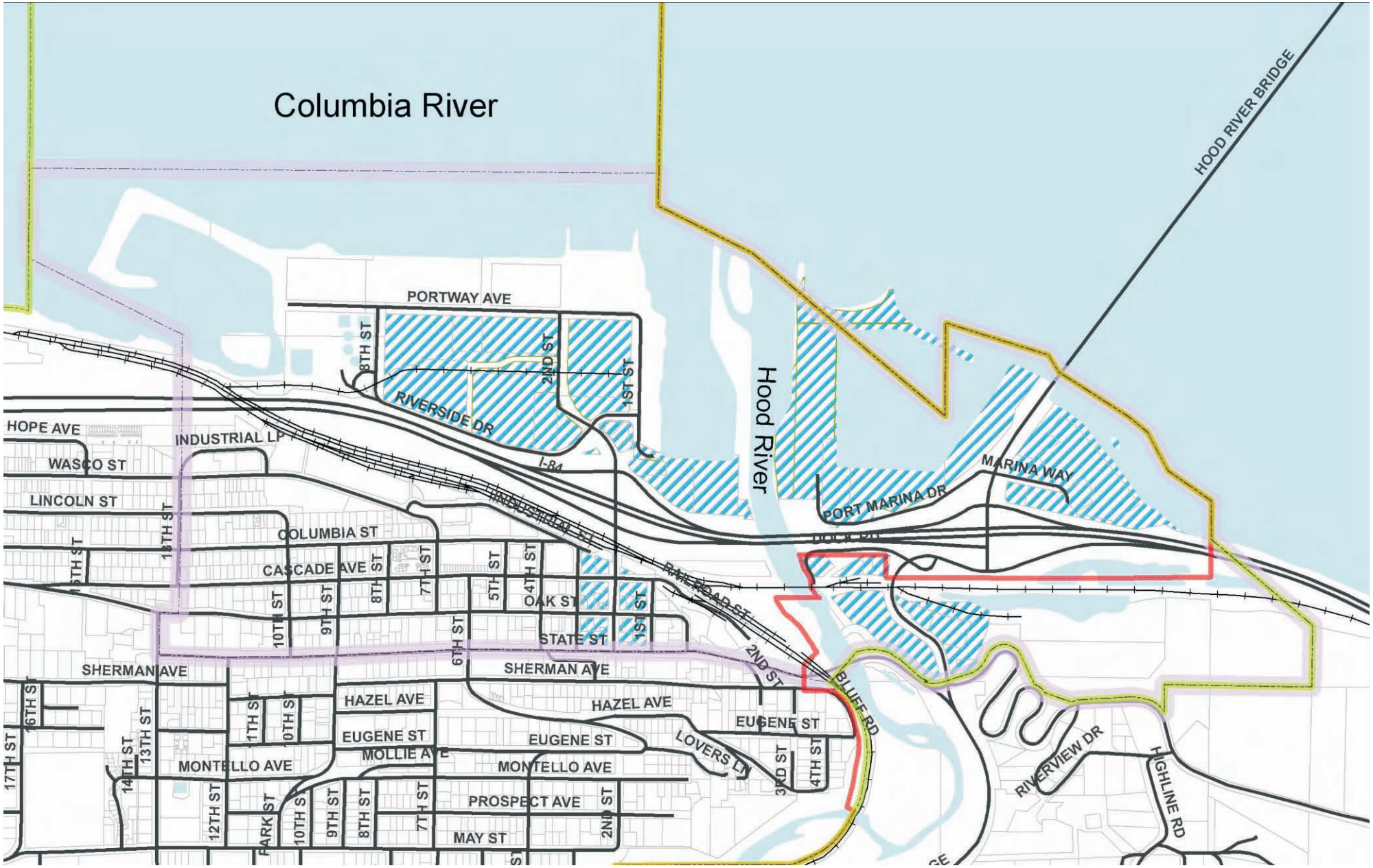
City of Hood River Implementing Actions

Project Construction, Land Use, and Access Management

- The City of Hood River will participate in the design and construction of the I-84 Exit 64 interchange reconstruction that is currently underway.
- The City will modify regulations pertaining to access to local roads in the vicinity of the I-84 Exit 63 and Exit 64 interchanges, consistent with the Access Management Plan included in this IAMP.
- The City will modify regulations pertaining to Traffic Impact Analyses in the vicinity of the I-84 Exit 63 and Exit 64 interchanges to require these studies to consider development impacts on the interchanges and on IAMP study area intersections.
- The City will amend their Transportation System Plan to incorporate local system improvements and will seek funding to facilitate implementation.

Policy Actions

- The City will amend its zoning plan map to include an IAMP Overlay Zone (shown in Figure 11).
- The City will adopt Comprehensive Plan policies that are consistent with the stated function and planned design of the interchange facility and the surrounding transportation system, as identified in the IAMP.
- Requirements for regulating access management consistent with the IAMP will be codified in a new IAMP Overlay Zone (HRMC 17.03.120) and in the City's site development regulations (HRMC 17.20).



LEGEND

- City Limits
- Urban Growth Boundary
- Interchange Area Management Plan Overlay Zone
- Access Management Blocks
- Roadway
- Railroad
- Taxlots

NO SCALE

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Figure 11

I-84 Exit 63 & Exit 64 Interchange Area Management Plan Overlay Zone

Hood River County Implementing Actions

Project Construction, Land Use, and Access Management

- The County will participate in the design and construction of the I-84 Exit 64 interchange reconstruction that is currently underway.
- The County will modify regulations pertaining to access to local roads in the vicinity of the I-84 Exit 63 and Exit 64 interchanges, consistent with the Access Management Plan included in this IAMP.
- The County will modify regulations pertaining to Traffic Impact Analyses in the vicinity of the I-84 Exit 63 and Exit 64 interchanges to require these studies to consider development impacts on the interchanges and on IAMP study area intersections.
- The County will amend their Transportation System Plan to incorporate local system improvements.

Policy Actions

- The County will amend its zoning plan map to include an IAMP Overlay Zone (shown in Figure 11).
- The County will adopt Comprehensive Plan policies that are consistent with the stated function and planned design of the interchange facilities and the surrounding transportation system, as identified in the IAMP.
- Requirements for regulating access management consistent with the IAMP will be codified in a new IAMP Overlay Zone (Chapter 17.03.090) and in the County's site development regulations for the Hood River Urban Growth Area, pursuant to Article 17 (Urban Growth Area Zoning Ordinance), Chapter 17.10 (Site Plan Review), Chapter 17.20 (Transportation Circulation and Access Management), and Chapter 16 (Land Division), Section 16.12.020 (General Design and Improvement Standards).

IAMP Adoption

It is anticipated that the adoption sequence will be as follows:

1. 45-day notice of adoption intent sent to state agencies by City and County
2. City planning commission advisory hearing to hear public testimony; deliberative hearings may be conducted at the discretion of the planning commission
3. City council legislative adoption hearings with coordinated staff report, public testimony, and deliberation
4. County planning commission advisory hearing to hear public testimony; deliberative hearings may be conducted at the discretion of the planning commission
5. County commission legislative adoption hearing with coordinated staff report, public testimony, and deliberation
6. Oregon Transportation Commission adoption hearing would take place at the first available meeting date after local adoption to consider amending the Oregon Highway Plan to include the I-84 Exit 63 & Exit 64 IAMP

Improvement Costs

Advanced planning for project funding will help implement needed improvements in a timely manner that supports development opportunities. Understanding the magnitude of costs associated with future projects can guide updates to System Development Charge rates, underscore the need for supplemental financing programs such as urban renewal districts or local improvement districts, and provides a basis for grant applications and potential public and/or private partnerships.

Planning-level cost estimates are provided in Table 7 to guide project budgeting. These estimates are intended to support long-range project programming and are based on available data sets and field observations, without the benefit of detailed surveys to accurately define potential environmental impacts, geological constraints, drainage needs, right of way impacts, and other factors that could affect construction costs. Therefore, as projects are developed in more detail in the future, the estimated costs should be updated.

Table 7: I-84 Exit 63 and Exit 64 Area Planning-Level Project Cost Estimates (2009 Dollars)

Improvement Project	Estimated Cost
Pedestrian Projects	
Construct sidewalk on both sides of OR 35/ Button Bridge Rd. between State St. (HCRH) and Button Bridge	*Cost included in OR 35/ State Street Traffic Signal motor vehicle project*
Construct sidewalk on south side of OR 35 from Button Bridge to Exit 64	$60,000
Construct multi-use trail from State St. to Port Marina Dr. (includes sidewalk to OR 35 on Dock Rd.)	$500,000
TOTAL	**$560,000**
Bicycle Projects	
Implement shared roadway treatments on State St., Oak St., Front St., and Cascade Ave. through the downtown	$60,000
TOTAL	**$60,000**
Motor Vehicle Projects	
~~Restrict turn movements at 2nd St./ Riverside Dr. and convert to two-way stop~~Mitigation~~s~~ for 2nd St./Riverside Dr.~~ive~~*	$310,000
Extended I-84 EB off-ramp and widened I-84 WB off-ramp with added 2nd St. SB lane from I-84 WB to Oak St.	$8,600,000
Construct traffic signal at 2nd St./ Oak St. intersection	$350,000
I-84 Exit 63/64 ramp queue detection and surveillance	$230,000
OR 35/ State St. traffic signal and geometric improvements	$1,100,000
TOTAL	**$10,590,000**

* ~~Assumes no acceptable alternative has been approved by ODOT and the City of Hood River.~~While appropriate mitigation is to be determined later, for budgeting purposes, a project including turning restrictions through construction of concrete islands was assumed.

Potential New Funding Sources

The projects listed in this plan are currently unfunded. The City of Hood River, Hood River County, Port of Hood River, and ODOT will need to cooperatively explore funding opportunities if improvements are to be made in a timely manner for supporting future growth. It is recommended that a wide variety of potential funding sources be considered, which may include strategies that have not been previously applied in Hood River.

This section describes several potential transportation funding sources, including State and County contributions, City sources (i.e., residents, businesses, and/or developers), grants, and debt financing. Many of these sources have been used in the past by other agencies in Oregon, and in most cases, when used collectively, are sufficient to fund transportation improvements for a local community.

State Contributions

Within the Exit 63 and Exit 64 IAMP area, many of the key roadways are not under City jurisdiction but instead are the responsibility of ODOT. The City should seek contributions (i.e., funding partnerships) from ODOT for projects located on state highways.

ODOT Contributions

ODOT funds projects on state highways under three primary programs: modernization, preservation and maintenance, and grants (see Grant Programs below). Programmed projects are included in the four-year Statewide Transportation Improvement Program (STIP), which is updated every two years. ODOT maintenance districts (District 2C for Hood River) also have available funds that may be used for small-scale projects such as infill of sidewalks on a state highway.

There are no STIP funds dedicated towards projects in the Exit 63 and Exit 64 IAMP area at this time. The City should work with ODOT to prioritize key projects for inclusion on the STIP that benefit both the City and State. Key projects could include the improvements to the Exit 63 interchange ramps, widening of the 2nd Street overcrossing bridges, Exit 63 and Exit 64 queue detection and surveillance, and improvements to the OR 35/ State Street intersection.

Direct Appropriations

The City can also seek direct appropriations from the State Legislature and/or the United States Congress for transportation capital improvements. There may be projects identified in the plan for which the City may want to pursue these special, one-time appropriations. In particular, projects that support economic development, such as the I-84 Exit 63 interchange improvements, may gain support for direct appropriations.

Developer Exactions

Exactions are roadway and/or intersection improvements that are partially or fully funded by developers as conditions of development approval. Typically, all developers are required to improve the roadways along their frontage upon site redevelopment. In addition, when a site develops or redevelops, the developer may be required to provide off-site improvements depending upon the expected level of traffic generation and the resulting impacts on the transportation system. While such improvements could be applied to many projects within the IAMP area, they may be most applicable to the intersection improvements on 2nd Street at Riverside Drive and Oak Street.

Urban Renewal District (URD)

A URD is a tax-funded district within the City. The URD is funded with the incremental increases in property taxes that result from the construction of applicable improvements. As desired, the funds raised by a URD can be used for, but are not limited to, transportation projects located within the URD boundaries. The City has already established URDs for the Waterfront and downtown core. Improvements within these districts could be considered for URD funding.

Transportation System Development Charges (SDCs)

SDCs are a funding source collected from new development that can be used to fund projects that increase the transportation system's capacity, but not for projects that target maintenance or operations. While the methodologies for determining the SDC rate may vary, a commonly used method is to base the rate on the estimated p.m. peak hour vehicle trips generated by a proposed development. Because a single-family home generates approximately 1.0 p.m. peak hour vehicle trip, it is often considered the base unit.

The City of Hood River has a current transportation SDC rate of approximately $666 per single-family residence and $69.60 per daily trip for all other uses. To help fund transportation improvements to support future growth, the City could consider increasing the SDC rate. For every increase in SDC rates of $100 for single-family households and $10 per daily trip for all other trip types, there would be an additional $514,000 available for transportation improvements over a 21-year period.

Any of the motor vehicle projects in the IAMP area would be eligible for SDC funding through the City. The pedestrian and bicycle projects would not be eligible for City SDC funds under the current ordinance, however, the City is considering an amendment to their SDC ordinance that would allow for such use. The City's SDCs are a critical source of transportation funding and are likely to be spent on projects that directly support new growth. Therefore, it is uncertain how much could be dedicated to projects in the IAMP area. However, increasing the SDC rate would make more funds available citywide.

Hood River County has a current transportation SDC rate of approximately $1,311 per single-family residence and $137 per daily trip for other uses. The County's transportation SDC is a "reimbursement fee" for excess capacity in the existing county road system that is available to accommodate growth. New developments outside of incorporated areas are charged the County's transportation SDC, which may be used for any capital improvement project identified in the County's Transportation System Plan (including pedestrian and bicycle projects).

Local Improvement District (LID)

The City may set up Local Improvement Districts (LIDs) to fund specific capital improvement projects within defined geographic areas, or districts. LIDs impose assessments on properties within its boundaries and may only be spent on capital projects within the district. Because citizens representing 33 percent of the assessment can terminate a LID and overturn the planned projects, LID projects and costs must obtain broad approval of those within the LID boundaries.

Proportionate Share Cost Allocations

Proportionate Share Cost Allocations distribute the cost of improvement projects over new developments by charging a fee per trip added to the location in need of improvement. The rate charged is commonly the total cost of the improvement divided by the anticipated growth in trips at that location over a specified period of time. The City is currently exploring opportunities to establish a proportionate share rate for the improvements to the intersection on 2nd Street at Oak Street.

Street Utility Fee

A number of Oregon cities supplement their street funds with street utility fees. Establishing user fees to fund designated transportation activities, maintenance, operations, and/or capital construction ensures that those who create the demand for service pay for it proportionate to their use. The street utility fees are recurring monthly or bi-monthly charges that are paid by all residential, commercial, industrial, and institutional users. The fees are charged proportionate with the amount of traffic generated, so a retail commercial user pays a higher rate than a residential user. Typically, there are provisions for reduced fees for those that can demonstrate they use less than the average rate implies, for example, a resident that does not own an automobile or truck.

From a system health perspective, forming a utility fee also helps to support the ongoing viability of the program by establishing a source of reliable, dedicated funding for that specific function. Fee revenues can be used to secure revenue bond debt for financing capital construction. A transportation utility fee can be formed by Council action and does not require a public vote.

The General Fund Revenues

At the discretion of the City Council, the City can allocate General Fund revenues to pay for its transportation program. General Fund revenues primarily include property taxes, use taxes, and any other miscellaneous taxes and fees imposed by the City. This allocation is completed as a part of the City's annual budget process, but the funding potential of this approach is constrained by competing community priorities set by the City Council.

Special Assessments

A variety of special assessments are available in Oregon to defray costs of sidewalks, curbs, gutters, street lighting, parking, and central business district (CBD) or commercial zone transportation improvements. These assessments would likely fall within the Measure 50 limitations. One example is the 50/50 program. This is a match program for sidewalk infill projects where property owners pay half the cost of a sidewalk improvement and the City matches the investment to complete the project.

Grants

The City of Hood River should actively pursue State and Federal grants, in particular to complete the identified pedestrian and bicycle projects. Current grant programs include:

Federal Funding Sources

- Highway Safety Improvement Program
- Transportation Enhancements
- Recreational Trails Program
- Safe Routes to School (SRTS)
- New Freedom Initiative
- Community Development Block Grants
- Land and Water Conservation Fund
- Transportation, Community and System Preservation Program

State Funding Sources

- Oregon Immediate Opportunity Fund
- Oregon Transportation Infrastructure Bank
- Oregon Special Transportation Fund
- Oregon Bicycle and Pedestrian Program Grants
- Oregon Pedestrian Safety Mini-Grant Program
- Oregon Business Energy Tax Credits (BETC)
- Oregon Safe Routes to School (OSRTS)

Other Funding Sources

- American Greenways Program
- Bikes Belong Grant Program

Debt Financing

While not a direct funding source, debt financing is another funding method. Through debt financing, available funds can be leveraged and project costs can be spread over the projects' useful lives. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but it is also viewed as an equitable funding source for larger projects because it spreads the burden of repayment over existing and future customers who will benefit from the projects. One caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations. Two methods of debt financing are voter-approved general obligation bonds and revenue bonds.

Voter-Approved General Obligation Bonds

Subject to voter approval, the City can issue General Obligation (GO) bonds to debt finance capital improvement projects. GO bonds are backed by the increased taxing authority of the City, and the annual principal and interest repayment is funded through a new, voter-approved assessment on property throughout the City (i.e., a property tax increase). Depending on the critical nature of projects and the willingness of the electorate to accept increased taxation for transportation improvements, voter-approved GO bonds may be a feasible funding option for specific projects. Proceeds may not be used for ongoing maintenance.

Revenue Bonds

Revenue bonds are municipal bonds that are secured by the revenue received by financing income-producing projects. In contrast to GO bonds, revenue bonds fund projects that generally only serve those in the community who pay for their services. Given the nature of revenue bonds, they may not be as applicable to transportation projects as are GO bonds and are most commonly used for other municipal projects such as sewer and water system upgrades where users pay a monthly fee for service. Interest costs for revenue bonds are slightly higher than for GO bonds due to the perceived stability offered by the "full faith and credit" of a jurisdiction.

CHAPTER 4: MONITORING AND UPDATES

Following adoption of the IAMP, regular maintenance is recommended to ensure it continues to meet the needs of area stakeholders.

Interchange Performance Monitoring

This plan identifies improvements to the transportation system surrounding the I-84 Exit 63 and Exit 64 interchanges that will provide for safe and efficient travel through the year 2031. However, it will be most effective if a proactive approach is taken. When needs are anticipated in advance, there is more time to develop funding and implementation strategies, which could include public and/or private partnerships, so incremental improvements are made in a timely manner and continue to support growth opportunities.

Recommended Process and Responsibilities

As the owner of most transportation facilities in the area, the primary responsibility for interchange area performance monitoring will be assigned to the Oregon Department of Transportation. However, the City of Hood River is encouraged to take an active role in this effort as well.

Performance monitoring will be carried out through regular tracking of traffic volumes through key intersections and roadways, as well as through findings included in Traffic Impact Analyses completed as part of proposed development applications.

Traffic Impact Analyses will be required by ODOT as part of approach applications pursuant to OAR 734-051, and will be required as part of land use applications filed with the City of Hood River pursuant to Hood River Municipal Code 17.20.060 and by Hood River County pursuant to Article 17, Chapter 17.20 (Transportation Circulation and Access Management). Any Traffic Impact Analysis being conducted relative to development partially or entirely within the IAMP overlay zone for the Exit 63 and Exit 64 interchanges (Figure 11) must include an account of weekday p.m. peak hour site generated trips through IAMP study intersections. Intersections impacted by 25 or more weekday p.m. peak hour site generated trips shall be analyzed for level of service and volume to capacity ratio during day of opening conditions. This requirement will not preclude Oregon Department of Transportation, City of Hood River, or Hood River County from requiring analysis of IAMP study intersections under other conditions.

The Oregon Department of Transportation shall obtain traffic volume counts at IAMP study intersections. Traffic volumes counts shall minimally include two-hour weekday p.m. peak hour turn movement counts. New count data for each intersection should be obtained at least every two years. However, count data should be obtained more frequently where significant land development has occurred.

Table 8 is provided to help forecast approaching needs for transportation improvements in the interchange areas. Within this table, an approximated phasing plan for transportation improvements identified for this area has been laid out assuming growth will occur on an even and linear basis over the next 20 years. Because land development is generally not that regular or predictable, the estimated year of need should be used with caution. Rather, the weekday p.m. peak hour volume targets for critical movements at key intersections should be reviewed as part of the regular monitoring process. Traffic volume data obtained from Traffic Impact Analyses and other sources should be regularly reviewed with

consideration to the phasing guide in Table 8 to identify intersection and roadway improvements that will be needed soon.

IAMP Updates

As area conditions change, the I-84 Exit 63 & Exit 64 IAMP should be reviewed to ensure it continues to address needs through the planning horizon and should be updated accordingly. Actions that should trigger an IAMP review include:

- A change to the City of Hood River or Hood River County Comprehensive Plan, Plan Map, or implementing zoning ordinances that will have a "significant effect" on the transportation system within the IAMP overlay zone. The determination of a "significant effect" shall be pursuant to OAR 660-012-0060.
- The construction of transportation improvement projects within the IAMP overlay zone that are inconsistent with planned and assumed projects in the City of Hood River Transportation System Plan or the I-84 Exit 63 & Exit 64 IAMP.
- An amendment or update to the City of Hood River or Hood River County Transportation System Plans.
- Significant modifications to the I-84 Exit 62 interchange that are inconsistent with the I-84 Exit 62 IAMP.
- Approval of a development of substantial size partially or entirely within the IAMP overlay zone that is consistent with the underlying zoning, but represents a worst-case trip generation scenario when considering the range of uses allowed in that zoning district. As a general guide, a development of substantial size from a trip generation perspective would generate 500 or more peak hour trips.

In addition to the above actions, consideration should be given to reviewing the IAMP for needed updates every five years. This could be done as part of the monitoring process and could be as simple as reviewing the above list for any actions that may have occurred since the last review.

Table 8: I-84 Exit 63 and Exit 64 Interchange Area Transportation Improvement Project Phasing Guide

Estimated Year of Need	Location	Project Needed	Critical Movement	Weekday PM Peak Hour Volume	OHP Mobility Standard
Near-Term	2nd Street/ Oak Street k Street	Signalize intersection with no geometric improvements.	Southbound Approach	600	0.90
2020	2nd Street/ I-84 WB Ramps*	Construct second westbound left turn lane (200' storage) and extend right turn storage lane down ramp (125' storage). This will include bridge widening that will add an additional southbound through lane from this intersection to the 2nd Street/ Oak Street intersection where the additional southbound lane will drop as southbound right turn lane. This will also include removing parking on 2nd Street and widening the south portion of the interchange bridge between the eastbound ramps and Cascade Avenue (over railroad).	Westbound Left Turn	400	0.85
	2nd Street/ I-84 EB Ramps	Extend off-ramp a minimum of 200 feet and extend right turn lane further down ramp (250' storage).	Eastbound Right Turn	125	0.85
2025	OR 35/ State Street	Signalize intersection and reconfigure geometry to include a through/right shared lane with a separate left turn lane for the northbound and westbound approaches (250' storage for northbound left, 75' storage for westbound left). For the southbound and eastbound approaches, the lane configuration should include a left turn lane, through lane, and a separate right turn lane (125' storage for southbound left, 150' storage for eastbound through). The eastbound right turn lane may continue to be a channelized right that flows into an add lane that merges further south of the intersection.	Northbound Through/Left	400	0.80
2030	2nd Street/ Riverside Drive	~~Remove stop signs from 2nd Street approaches and restrict turning movements to allow only right-in and right-out turn movements on the Riverside Drive approaches, in addition to allowing southbound lefts from 2nd Street to Riverside Drive.**~~Mitigate failing operations in a manner that supports safe and efficient operation of the I-84 Exit 63 interchange through a project to be approved by ODOT and the City of Hood River. This assumes 1st ~~street~~ Street is still in place between Portway Avenue and Riverside Drive. If 1st Street is removed, this project will be needed sooner.	Northbound Through/Right	500	0.90

* Recommended interim improvement including queue detection on the I-84 Exit 63 westbound off-ramp and surveillance cameras may be implemented prior to the 2nd Street/ I-84 westbound ramp improvements if needed.

~~** Assumes an acceptable alternative for mitigating this intersection in a manner that supports safe and efficient operation of the I-84 Exit 63 interchange has not been approved by ODOT and the City of Hood River.~~